INSTALLING AND DEPLOYING ADOBE® LIVECYCLE® ES4 USING JBOSS® TURNKEY

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Chapter 1: About This Document

1.1 What this document contains

This document explains how to install and configure Adobe® LiveCycle® Enterprise Suite 4 (ES4) for Red Hat® JBoss® and MySQL by using the turnkey method. The turnkey method automatically installs, and configures the product and is the recommended installation option for rapid evaluation, development, and small production deployments.

1.2 Who should read this document?

Note: *This document is intended for users who are installing, configuring, administering, or deploying LiveCycle ES4.*

These users include evaluators, administrators, or developers who are responsible for installing, configuring, administering, or deploying LiveCycle. The information provided is based on the assumption that anyone reading this document is familiar with the Microsoft® Windows® operating systems and web environments.

1.3 Conventions used in this document

This document uses the following naming conventions for common file paths.

Name	Default value	Description
[LiveCycle root]	C:\Adobe\Adobe LiveCycle ES4	The installation directory that is used for all LiveCycle modules. This directory contains subdirectories for Adobe® LiveCycle® Configuration Manager, SDK, and CRX repository.
[JBoss root]	C:\Adobe\Adobe LiveCycle ES4\jboss	The home directory of the application server that runs LiveCycle.
[Adobe_JAVA_HOME]	C:\Adobe\Adobe LiveCycle ES4\Java\jdk1.6.0_31	The home directory of the Java JDK installed by the LiveCycle turnkey.

1.4 Additional information

The resources in this table can help you learn about LiveCycle.

For information about	See
General information about LiveCycle and the modules	LiveCycle Overview
Other services and products that integrate with LiveCycle	LiveCycle Development Center

For information about	See
All documentation available for LiveCycle	LiveCycle documentation
Adobe LiveCycle ES4 Upgrade Checklist and Planning	Adobe LiveCycle ES4 Upgrade Checklist and Planning
Patch updates, technical notes, and additional information about this product version	Adobe® Enterprise Support

Chapter 2: Turnkey Overview and Architecture

2.1 Turnkey overview

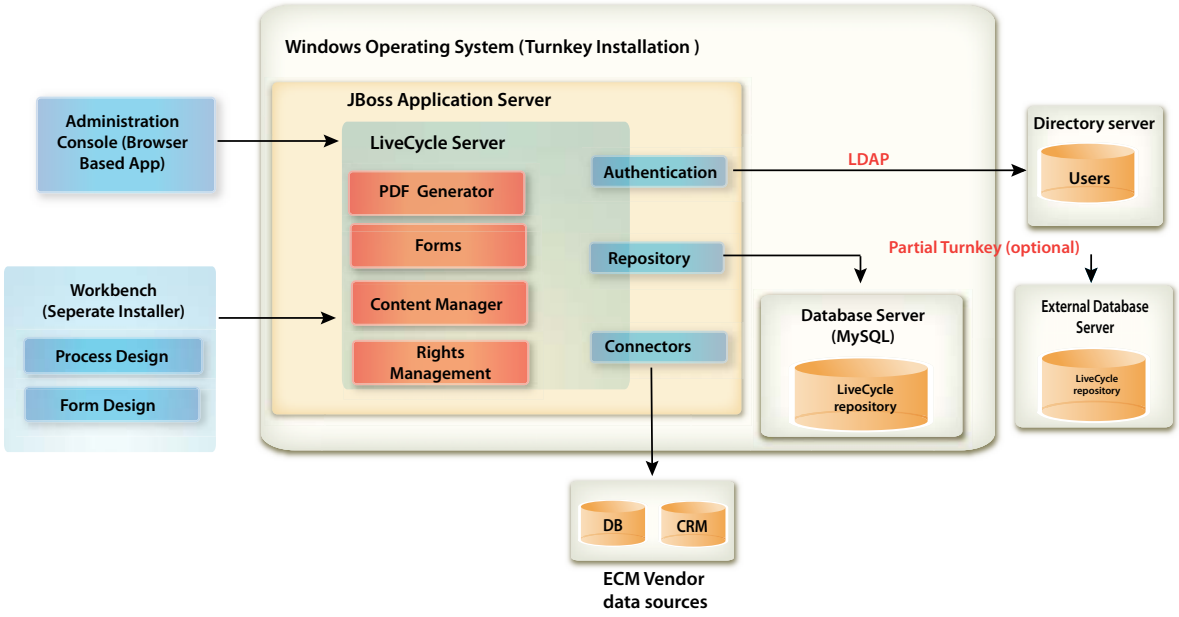
The turnkey option is most appropriate for rapid installations of evaluation, developer, and small production environments. The turnkey method automatically performs all of the tasks required to install and configure LiveCycle on a JBoss Application Server. It also installs a local MySQL database (or uses a remote database you have preconfigured) running on Microsoft Windows only.

The turnkey installation performs the following tasks:

- Installs the product files
- Installs the required Sun JDK version 1.6.0_31
- Installs JBoss 5.1 Application Server (with Apache Tomcat servlet container embedded)
- Installs the MySQL 5.1.30 database (not included with Partial Turnkey option)
- Starts Configuration Manager
- Configures and assembles the LiveCycle EAR files in either express mode or custom mode
- Deploys LiveCycle to JBoss
- Initializes the database (either the Local MySQL database or, with the Partial Turnkey option, the remote database)
- Deploys required LiveCycle components to JBoss.
- Configures selected LiveCycle modules

You can also run the turnkey install in the command line mode. You can use this option if you are installing LiveCycle on a computer that does not support a GUI. You can also use the command line option to uninstall LiveCycle.

2.2 Turnkey installation architecture



LiveCycle turnkey installation

Some of the components are optional as part of the turnkey installation. For example:

- LDAP Directory Server - you do not need to authenticate with LDAP to set up LiveCycle users. For lab trials and testing purposes, you can use Adobe® User Management (available from Administration Console) to create new user accounts.
- Partial Turnkey - External database server - the typical turnkey installation includes a preconfigured MySQL database.
- Adobe® LiveCycle® 11 Connectors for ECM - LiveCycle can connect to your ECM vendor's data source (if applicable).

Note: *The above illustration shows Adobe® LiveCycle® Workbench 11 required for creating and deploying processes to the LiveCycle server. See Installing Workbench for detailed instructions.*

Chapter 3: System Prerequisites

3.1 System requirements

Use the turnkey installation to install all the modules on a single system for development and evaluation. Ensure that your target computer has at least 4-GB RAM. For detailed system requirements, see the LiveCycle Supported Platform Combinations.

3.2 Additional prerequisites

3.2.1 Hardware

For any installation, these settings are recommended as the minimum:

- Disk space for installation: 3 GB (an additional 3 GB is required if you are using an ESD download as opposed to installing from a DVD)
- For correspondence management, an additional space of 500 MB is required.
- System temporary space during installation: 5.4 GB
- Memory for running LiveCycle: 4 GB
- Processor: Intel® Pentium® 4 or equivalent, 1.6 GHz, or higher processor

3.2.2 Operating System

The turnkey method is supported on Windows Server 2008 R1 and Windows Server 2008 R2 Standard and Enterprise Edition running on 64-bit architectures (required for production environment).

Note: *Windows Vista and Windows 7 are supported for LiveCycle evaluation and development. You must have administrator privileges on Windows to run the installer. If you run the installer using an account that does not have these privileges, you will be prompted for the credentials of an account with administrator privileges.*

3.2.3 Partial turnkey database preconfiguration

The Partial Turnkey option allows you to use your existing database with the preconfigured JBoss application server. The following database types are supported:

- MySQL 5.1.30
- Microsoft SQL Server 2005 SP2, 2008 R2
- Oracle 10g R2 and 11g

If you are using your existing database, configure the database as specified in the Creating the LiveCycle Database.

3.2.4 Reader Extensions credential

If you are installing Reader Extensions, ensure that you have a valid credential and password. If you do not have this information, contact your Adobe account representative. You can choose to skip importing the Reader Extensions credential when configuring and deploying LiveCycle and install it later using the Trust Store component in Administration Console.

3.3 Before you start

3.3.1 General considerations

Before you install, read through the following information to ensure that your installation runs smoothly:

- To reduce the time of installation, install LiveCycle either by using a local copy of the installation files or directly from the DVD. The installation could fail when LiveCycle is installed from a network.
- Ensure that the installation media that you received is not damaged. If you copy the installer media to the hard disk of your computer, ensure that you copy the entire DVD contents on to the hard disk.
- If you downloaded the installer file set, verify its integrity using an MD5 check sum utility. Use this utility to check the MD5 check sum values with the value displayed on the Adobe download website. You can use a tool such as WinMD5.
- To avoid installation errors, do not copy the DVD install image to a directory path which exceeds the maximum path length limitation. Typically, long network paths cause this error. See http://msdn.microsoft.com/en-us/library/aa365247.aspx for more information.
- Download any patch updates for LiveCycle available from Adobe Enterprise Support.
- You may choose to disable any on-access virus scanning software for the duration of the installation, to improve the speed of installation on Windows.
- The turnkey installation creates the following Windows services, which, by default, are set to run automatically on startup:
  - MySQL for Adobe LiveCycle ES4
  - JBoss for Adobe LiveCycle ES4
- By default, the turnkey installation places LiveCycle components in the `C:\Adobe\Adobe LiveCycle ES4\` directory.

  Important: *If you choose another directory, do not use the name* ***test*** *as your directory name (for example, C:\test) or the MySQL install process will fail.*
- By default, JBoss is installed to and runs from the *[JBoss root]* directory.

3.3.2 Disable the Windows UAC on Vista and Windows Server 2008 R1

1. To access the System Configuration Utility, go to **Start** > **Run** and then enter **MSCONFIG.**
2. Click the **Tools** tab and scroll down and select **Disable UAC.**
3. Click **Launch** to run the command in a new window.
4. When finished, close the command window and close the System Configuration window.
5. Restart your computer.

You must disable UAC when installing and configuring LiveCycle. To enable the UAC again, repeat the steps above and select **Enable UAC** before clicking Launch.

3.3.3 Disable the Windows UAC on Windows 7 and Windows Server 2008 R2

1. To access the System Configuration Utility, go to **Start > Run** and then enter **MSCONFIG.**
2. Click the **Tools** tab and scroll down and select **Change UAC Settings.**
3. Click **Launch** to run the command in a new window.
4. Adjust the slider to the **Never notify** level.
5. When finished, close the command window and close the System Configuration window.
6. Restart your computer.

To enable the UAC again, repeat the steps above and adjust the slider to a desired level before restarting your computer.

Important: *The Windows User Account Control (UAC) must remain disabled for PDF Generator to work properly. You can run the installation and configuration process by turning on the UAC with the Elevate without prompting option enabled. However, disable UAC to run PDF Generator.*

3.3.4 Reader Extensions credential

If you are installing Reader Extensions, ensure that you have a valid credential and password. If you do not have this information, contact your Adobe account representative. You can choose to skip importing the Reader Extensions credential when configuring and deploying LiveCycle and install it later using the Trust Store component in Administration Console.

3.3.5 Preconfigurations for PDF Generator

With native application file support, PDF Generator can convert files from native formats such as Microsoft Word to Adobe PDFs. Before you install PDF Generator, complete the tasks listed below.

3.3.5.1 Installing software for native file conversions

Before you install PDF Generator, install the software that supports the native file types for which, PDF conversion support is required. Also, manually activate licenses for the software using the same user account used to run the application server.

Refer and conform to the individual licensing agreement for each native application used for conversions with LiveCycle.

PDF Generator can be extended to convert these additional file types to PDF files by using the following applications:

- Microsoft Office 2007, 2010 (DOC, XLS, PPT, RTF, TXT, Microsoft Office open XML Formats)
- Microsoft Office Visio 2007, 2010 (VSD)
- Microsoft Publisher 2007, 2010 (PUB)
- Microsoft Project 2007, 2010 (MPP)
- Corel WordPerfect 12, X4 (WPD)
- Adobe® FrameMaker® 7.2, 8.0 (FM)
- Adobe® PageMaker® 7.0 (PMD, PM6, P65, PM)

- OpenOffice 3.3 (ODT, ODP, ODS, ODG, ODF, SXW, SXI, SXC, SXD, SXM)

Note: *LiveCycle supports only 32-bit editions of all the above mentioned software.*

Note: *Install OpenOffice 3.3 on the server to convert the documents created in version 3.3. On Linux platform, OpenOffice must be installed under /root user. If OpenOffice is installed for specific users, PDFG might not be able to convert OpenOffice documents.*

You do not need to install a native software application to convert the following native file formats:

- Web files (HTML)
- Print files (PS, PRN, EPS)
- Image files (JPEG, GIF, BMP, TIFF, PNG)

3.3.5.2 Installing Adobe Acrobat for PDF Generator

Install Adobe® Acrobat® XI Pro before running the LiveCycle installer. Ensure that you launch Acrobat at least once after installing it to avoid PDF Generator configuration issues. Dismiss all modal dialog boxes that appear on launching Acrobat.

However, if LiveCycle is installed and Acrobat is not installed, install Acrobat and then run the Acrobat_for_PDFG_Configuration.bat script, located in the folder *[LiveCycle root]*\pdfg_config. Otherwise, PDF conversions may fail.

The LiveCycle installer sets the `Acrobat_PATH` (case sensitive) environment variable automatically. You can also choose to set it manually, see "6.13.1 Setting environment variables" on page 51. Restart your application server after setting the environment variable.

To use AES 256 encryption in LiveCycle Encryption service to encrypt a PDF document, you must obtain and install the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy files. For Oracle JDK installed with turnkey installation, download JCE files from Java SE Downloads. After downloading the policy file, replace the existing local_policy.jar and US_export_policy.jar files under *[Adobe_JAVA_HOME]*/jre/lib/security folder with the downloaded JAR files.

3.3.5.3 Enabling multi-threaded file conversions and multiuser support for PDF Generator

By default, PDF Generator can convert only one OpenOffice, Microsoft Word, or PowerPoint document at a time. If you enable multi-threaded conversions, PDF Generator can convert more than one of the documents concurrently by launching multiple instances of OpenOffice or PDFMaker.

Note: *Multi-threaded conversions are not supported for Microsoft Excel, Microsoft Visio, Microsoft Project, and Microsoft Publisher.*

Note: *Microsoft Excel and Microsoft Visio files are not converted simultaneously. During conversion, EXCEL.exe and VISIO.exe are watched in the task manager. The Visio file is processed only after processing on the Excel file is complete.*

Each instance of OpenOffice or PDFMaker is launched using a separate user account. Each user account that you add must be a valid user with administrative privileges on the LiveCycle server computer. On 64-bit Windows, disable Windows UAC. See "3.3.2 Disable the Windows UAC on Vista and Windows Server 2008 R1" on page 6 or "3.3.3 Disable the Windows UAC on Windows 7 and Windows Server 2008 R2" on page 7, as applicable.

When adding users for OpenOffice, Microsoft Word, or Microsoft PowerPoint dismiss the initial activation dialogs for all users. After your LiveCycle server is configured, add LiveCycle user accounts in Administration Console. See the "6.13.7 User accounts for multi-threaded file conversions" on page 53.

To enable multiuser support for native files and OpenOffice files on a Windows environment, add a minimum of three users with the following permissions.

Platform	User permissions
Windows 2008 Server	Users with administrative privileges

When you add users for PDF Generator native conversions, grant the user Logon as Service right. For more information, see "3.3.5.4 Granting the Logon as Service right" on page 9

3.3.5.4 Granting the Logon as Service right

If you are installing PDF Generator on any Windows operating system, grant the Logon as Service right to the user that installs LiveCycle.

1 Select **Start** > **Control Panel** > **Administrative Tools** > **Local Security Policy** > **Local Policies** > **User Rights Assignment**.

2 Double-click **Log on as a service** and click **Add User or Group**.

3 Type the user name for the Microsoft Administrator and click **OK**.

Chapter 4: Installing and Configuring - Turnkey

When, installing LiveCycle you can choose various installation and configuration options to help you customize your turnkey installation. Here are the turnkey installation options:

Express Mode: Completes the configuration using defaults and limited configuration screens. Express Mode is recommended if you do not want any special system configuration.

Custom Mode: Allows you to customize the system configuration and requires some additional knowledge of LiveCycle, JBoss Application Server, and the MySQL database.

Partial Turnkey: Completes the configuration of LiveCycle using a JBoss application server. However, this option allows you to configure your own database for LiveCycle.

4.1 Checking the installer

Observe the following best practices with the installer files before you begin the installation process.

4.1.1 Check the DVD installation media

Ensure that the installation media that you received is not damaged. If you copy the installer media contents to the hard disk of your computer where you are installing LiveCycle, ensure that you copy the entire DVD contents on to the hard disk. To avoid installation errors, do not copy the DVD install image to a directory path that exceeds the Windows maximum path length limit.

4.1.2 Check the downloaded files

If you downloaded the installer from the Adobe website, verify the integrity of the installer file using the MD5 checksum. Use a tool such as WinMD5 to calculate and compare the MD5 checksum of the downloaded file with the checksum published on the Adobe download web page.

Note: *The DVD installation media and downloaded ESD include CRX 2.3, a content repository based on JCR 2.0 technology, in the \third_party\additional\ directory. You can use CRX 2.3 as a data storage system. The terms of usage are governed by LiveCycle ES4 Supplemental Terms and Conditions. For information about using CRX 2.3, see http://dev.day.com/docs/en/crx/current.html.*

4.2 Installing LiveCycle

4.2.1 Installing LiveCycle

1 Do one of the following:

- From the download site, download and extract the entire JBoss_DVD.zip file (the LiveCycle Electronic Software Distribution or ESD file) to your file system. Be sure to keep the directory hierarchy unchanged from the JBoss_DVD.zip file.
  - After extracting the ZIP file, launch the installer using one of the following methods:
  - (for 32-bit systems) double-click the **install.exe** file from the \server\Disk1\InstData\Windows\VM folder
  - (for 64-bit systems) double-click the **install.exe** file from the \server\Disk1\InstData\Windows_64\VM folder
- From the JBoss DVD, navigate to the \server folder. Launch the installer using one of the following methods:
  - (for 32-bit systems) double-click the **install.exe** file from the \server\Disk1\InstData\Windows\VM folder
  - (for 64-bit systems) double-click the **install.exe** file from the \server\Disk1\InstData\Windows_64\VM folder

  Note: *32-bit version is for development and evaluation purposes only.*

  Note: *For 32-bit installation, ensure that Adobe_JAVA_HOME environment variable is set for the 32-bit version of JDK.*

2 When prompted, select the language for installation, and then click **OK**.

3 On the Introduction screen, click **Next**.

4 On the Preparation for Upgrade screen, appears only if you have a previous version of LiveCycle installed on the target machine, perform one of the following operations:

- Select **Prepare to upgrade existing installation to Adobe LiveCycle ES4**, to upgrade to LiveCycle ES4. If the path displayed does not point to the location of the LiveCycle installation you would like to upgrade, click **Browse** to specify the path of the LiveCycle instance you would like to upgrade.
- Select **Install Adobe LiveCycle ES4**, to install a fresh instance of LiveCycle.

5 On the Choose Install Folder screen, accept the default directory as listed or click **Choose** and navigate to the directory where you want to install LiveCycle, and then click **Next**. This directory is referred to as *[LiveCycle root]*. The default path for installation is C:\Adobe\Adobe LiveCycle ES4.

Use **Restore Default Folder** button, to replace user added path to default installation path.

Note: *It is recommended that the installation directory path should not exceed 40 characters. And it must not contain international or special characters.*

6 On the Choose Installation Type screen, select the installation type and click **Next**:

- Select **Turnkey** under Typical as the installation type for a typical turnkey installation. Turnkey option installs LiveCycle, JBoss 5.1 application server , MySQL 5.1.30 database, and JDK 1.6.0_31.
- Select **Partial Turnkey** under Custom if you want to use a database other than the preconfigured MySQL database. LiveCycle, JBoss application server, and JDK 1.6.0_31 are installed by default.
- Select **Manual** if you do not want a turnkey installation but instead want a custom install. This option is selected by default if you already have a JBoss application server and MySQL database installed on your system with their Windows service names identical to those created by the LiveCycle installer.

Note: *For Manual installations, see the Installing and Deploying LiveCycle guide for your application server. Also, review all preparatory steps in Preparing to Install LiveCycle before continuing.*

7 **(For MySQL provided with the installer only)** On MySQL Database selection screen, set the MySQL root administrator password and, optionally, type your MySQL port number. This screen appears only if you are performing a turnkey installation, or in a partial turnkey installation when you have selected the **Include the Turnkey MySQL** option.

Note: *MySQL does not allow special characters or spaces in the user name or password. Ensure that you record this password for future reference.*

- To verify that the port number is available for use, click **Test**. If the port is available, the installer displays a green check mark. If the port is in use, the installer displays a red X.
- If the port is in use, type a new port number and repeat the process until you find a port that is available. Clicking **Reset** populates the port box with the default port number *3306*.

8 Read the JBoss Application Server License Agreement and, if you agree, select **I accept** and then click **Next**.

9 (**For MySQL provided with the installer only**) Read the MySQL License Agreement and, if you agree, select **I accept**, and then click **Next**. This screen will appear only when **Turnkey** or **Include the Turnkey MySQL** option is selected in case of Partial Turnkey.

10 Read the Adobe LiveCycle ES4 Server license agreement and, if you agree, select **I accept**, and then click **Next**.

11 Review the pre-installation summary, and then click **Install**. The installation program displays the progress of the installation. This process may take several minutes to complete.

12 Review the Release Notes and click **Next**.

13 On the Install Complete screen, choose one of these options:

- If no service pack updates are required, ensure that **Start LiveCycle Configuration Manager** is selected, and then click **Done**.
- If service pack updates are required, deselect the **Start LiveCycle Configuration Manager** option and click **Done** to exit the installer.

  Note: *If you deselect **Start LiveCycle Configuration Manager** and exit the installer, you can run Configuration Manager later by using the ConfigurationManager.bat file located in [LiveCycle root]\configurationManager\bin.*

4.3 Install service packs

Before you complete the configuration using Configuration Manager, apply the latest LiveCycle service packs. See Adobe Enterprise Support for details.

4.4 Configuring LiveCycle

Now that LiveCycle is installed on the computer, you should run Configuration Manager to complete the configuration. You may choose to run Configuration Manager in Express Mode (recommended for quick deployments) or Custom Mode.

- See, "4.4.1 Configuring LiveCycle - Express Mode" on page 13 for step-by-step instructions to run Configuration Manager in Express Mode.

- See, "4.4.2 Configuring LiveCycle - Custom Mode" on page 16 for step-by-step instructions to run Configuration Manager in Custom Mode.

4.4.1 Configuring LiveCycle - Express Mode

Note: *Press **F1** in Configuration Manager to view Help information for the screen you are viewing. You can view the configuration progress at any time by clicking View Progress Log.*

Note: *During configuration, if you must reset the data in Configuration Manager by using the Reset to Default option, ensure that you relaunch the Configuration Manager. Otherwise, you may encounter some missing configuration screens.*

1. If you are continuing from the LiveCycle installation, proceed to step 3; otherwise, navigate to the *[LiveCycle root]*\configurationManager\bin folder and run the ConfigurationManager.bat script.
2. When prompted, select the language to use, and then click **OK**.
3. On the Welcome to Adobe LiveCycle ES4 screen, click **Next**.
4. On the Upgrade Task Selection screen, ensure that **Upgrade from LiveCycle ES2 and ES2.5**, **Upgrade from ADEP** and **Upgrade from LiveCycle ES3** are deselected. If you are performing a LiveCycle upgrade, review the LiveCycle turnkey upgrade guide. Click **Next**.
5. On the Turnkey Mode screen, select **Express Mode** (recommended for quick deployments) and click **Next** to proceed to the next section.

4.4.1.1 Select modules and Configure CRX

1. On the Modules screen, ensure that the Adobe LiveCycle modules that you have licensed and want to deploy are selected, and then click **Next**.

   LiveCycle Foundation is included in the configuration and deployment when you choose any of the module lists.

   Note: *Some modules have technical dependencies on other modules for proper configuration and functioning. Configuration Manager displays a dialog and does not allow to proceed further if mutually dependent modules are not selected. For example, you must select Adobe LiveCycle Forms, Adobe LiveCycle Output, and Content Repository modules if you are configuring Correspondence Management Solution.*

   Note: *You do not need to deploy all of your licensed modules at the same time. You can rerun Configuration Manager later to deploy more modules.*

2. On the Configure Turnkey JBoss SSL screen, add the information to configure the SSL certificate and click **Configure JBoss SSL**, when complete click **Next**.

   You can skip this step by selecting the Skip Configuration and configure it later in LiveCycle Configuration Manager.

   - **Certificate Alias:** The alternate unique name that is used to reference the certificate (for example, LiveCycleCert).
   - **Keystore filename:** The name of the keystore that is assigned to store the keys and the certificate (for example, lces).

3. In the **CRX Configuration** screen, specify the path to the CRX repository click **Configure** to create the required repository files at the specified location. Default location for content repository is *[Livecycle root]*/crx-repository.

   It configures the repository to bundle within the LiveCycle Core EAR file.

   Click **Next** to continue.

A backup (adobe-jboss-core-ear.orig) for the original LiveCycle Core EAR file is taken in the [LiveCycle root]\deploy folder. You can restore the EAR file in case you want to run the set up again without the CRX repository.

Note: *Once the packages are configured, you cannot remove them by re-running the Configuration Manager. For clean uninstallation of deployed packages, you need to uninstall and delete the packages using Package Manager.*

4.4.1.2 Install verification samples

- (**Adobe® LiveCycle® Forms Standard 11, Adobe® LiveCycle® Mobile Forms 11, Adobe® LiveCycle® Output 11, and PDF Generator only**) On the LiveCycle ES4 Installation Verification Sample (IVS) EAR files screen, you can install three service-specific sample applications. Select **Include IVS EARs in deployment set** and click **Next** to install these sample files.

  `adobe-output-ivs-jboss.ear, adobe-mobileforms-ivs.ear,` and `adobe-forms-ivs-jboss.ear` appear only if you have selected respective modules on the Modules screen.

  Note: *Do not deploy the IVS EAR files to a production environment.*

4.4.1.3 Turnkey Express Mode and CRX Configuration Summary

- On the Express Mode screen, Click **Start** to start the configuration and deployment of LiveCycle and when complete, click **Next**.

4.4.1.4 Connector for EMC Documentum

- On the Specify Client for EMC Documentum screen, do one of the following tasks:
  - Leave the option selected, enter the appropriate version and directory path, and then click **Verify**. When complete, click **Next** and complete the tasks on the following screens:
    - On the Specify EMC Documentum Content Server Settings screen, enter the required values and then click **Next.**
    - On the Configure Adobe Connector for EMC Documentum screen, click **Configure Documentum Connector**. When complete, click **Next.**
  - Deselect the **Configure Connector for EMC Documentum Content Server** option to manually configure EMC Documentum later, and then click **Next**.

4.4.1.5 Connector for IBM Content Manager

- On the Specify Client for IBM Content Manager screen, do one of the following tasks:
  - Leave the option selected, enter the appropriate directory path, and then click **Verify.** When complete, click **Next** and complete the tasks on the following screens:
    - On the Specify IBM Content Manager Server Settings screen, enter the required values and then click **Next.**
    - On the Configure Adobe Connector for IBM Content Manager screen, click **Configure IBM Content Manager Connector.** When complete, click **Next.**
  - Deselect the **Configure Connector for IBM Content Manager** option to manually configure IBM Content Manager later, and then click **Next.**

4.4.1.6 Connector for IBM FileNet

❖ On the Specify Client for IBM FileNet screen, do one of the following tasks:

- Leave the option selected, enter the appropriate version and directory path, and then click **Verify**. When complete, click **Next** and complete the following screens:
  - On the Specify IBM FileNet Content Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for IBM FileNet Process Engine screen, enter the appropriate version (if enabled) and directory path, and then click **Verify.** When complete, click **Next**.
  - On the IBM FileNet Process Engine Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Adobe Connector for IBM FileNet screen, click **Configure FileNet Connector.** When complete, click **Next.**
- Deselect the **Configure Connector for IBM FileNet Content Manager** option to manually configure IBM FileNet later, and then click **Next.**

4.4.1.7 Connector for Microsoft SharePoint

On the Configure Connector for Microsoft SharePoint screen, do one of the following tasks:

- Leave the **Configure Connector for Microsoft SharePoint** option selected. Enter the required values, and then click Configure SharePoint Connector. When complete, click **Next** to manually configure Microsoft SharePoint later, and then click **Next**.
- Deselect the **Configure Connector for Microsoft SharePoint** option to manually configure Microsoft Sharepoint later, and then click **Next.**

4.4.1.8 Verify Configuration for ECM Connectors

On the Verify Configurations screen, do one of the following

- If you are configuring the connectors for the first time or have modified any of the configurations on the previous screens, leave the **Restart Application Server** option selected and click **Validate Configurations**. When successfully validated, click **Next**.
- If you wish to configure the connectors later, deselect the **Restart Application Server** option and click **Validate Configurations**. When successfully validated, click **Next**.

4.4.1.9 PDF Generator configuration

1 In the **Administrator user credentials for native PDF conversions** screen box, enter the user name and password of a user with administrative privileges on the server machine. Click **Add user.**

Add at least one administrative user for Windows 2008 Server and Click **Next**.

Note: *On Windows 2008 Server, disable User Account Control (UAC) for the users you add. To disable UAC, click* ***Control Panel > User Accounts > Turn User Account Control on or off*** *and deselect* ***Use User Account Control (UAC) to help protect your computer****. Click* ***OK****. Your changes become effective when the system is restarted.*

2 In the LiveCycle PDFGenerator System Readiness Test screen box, click **Start** to validate if the system has been appropriately configured for PDF Generator. Review the System Readiness Tool Report and click **Next.**

4.4.1.10 Configure Reader Extensions Credential

❖ In the **Reader Extensions Credential Configuration** screen box, choose one of these options:

- Browse and select a Reader Extensions credential file. Enter the Credential Password and name for the credential. click **Configure**, when complete Click **Next**.

- Skip this step by selecting **Configure Later Using LiveCycle ES4 Administration Console** and click **Next**. You can configure the Rights credential from Administration Console (**Settings** > **Trust Store Management** > **Local Credentials**).

4.4.1.11 Task summary

Review the Configuration Manager task summary list and select Launch **Next Steps** to launch an html page containing information about LiveCycle user and administrative interfaces. Click **Finish**.

4.4.2 Configuring LiveCycle - Custom Mode

4.4.2.1 Configuring LiveCycle

Note: *Press **F1** in Configuration Manager to view Help information for the screen you are viewing. You can view the configuration progress at any time by clicking View Progress Log.*

Note: *During configuration, if you must reset the data in Configuration Manager by using the Reset to Default option, ensure that you relaunch the Configuration Manager. Otherwise, you may encounter some missing configuration screens.*

1. If you are continuing from the LiveCycle installation, proceed to step 3; otherwise, navigate to the *[LiveCycle root]*\configurationManager\bin folder and run `ConfigurationManager.bat`.
2. When prompted, select the language to use, and then click **OK**.
3. On the Welcome to Adobe LiveCycle ES4 screen, click **Next**.
4. On the Upgrade Task Selection screen, ensure that **Upgrade from LiveCycle ES2 and ES2.5**, **Upgrade from ADEP** and **Upgrade from LiveCycle ES3** are deselected. Click **Next**.

   If you are performing a LiveCycle ES4 upgrade, review Upgrading to LiveCycle ES4 for JBoss Turnkey.
5. On the Turnkey Mode screen, select **Custom Mode** and click **Next** to proceed to the next section. Custom Mode allows you to customize the system configuration and requires some additional knowledge.

4.4.2.2 Selecting modules

- On the Modules screen, ensure that the Adobe LiveCycle modules that you want to upgrade are selected. By default, all the modules that you select will be licensed with an Evaluation License. Click **Next**.

  Note: *Some modules have technical dependencies on other modules for proper configuration and functioning. Configuration Manager displays a dialog and does not allow to proceed further if mutually dependent modules are not selected. For example, you must select Adobe LiveCycle Forms, Adobe LiveCycle Output, and Content Repository modules if you are configuring Correspondence Management Solution.*

4.4.2.3 Selecting Tasks

- On the Task Selection screen, ensure that all the required tasks are selected, and then click **Next.**

  Note: *The **Configure Application Server** and **Validate Application Server Configuration** tasks are not available for selection for JBoss turnkey. The JBoss turnkey method does not support these tasks because the application server is already configured for LiveCycle.*

4.4.2.4 Configuring LiveCycle EAR, Fonts, and GDS

1. On the Configure LiveCycle ES4 (1 of 5) screen, click **Configure** and, when the EAR files have been configured, click **Next**. Depending on the number of modules that are included in the configuration, this process may take several minutes to complete.

2 On the Configure LiveCycle ES4 (2 of 5) screen, set the directories that LiveCycle will use to access fonts and then click **Next.**

*Click **Edit configuration** to change any values on this screen. This button is not available when the Configuration Manager is run for the first time, but is available on the second and subsequent runs of the Configuration Manager.*

- (Optional) To change the default location of the **Adobe server fonts directory**, type the path or browse to the directory. The default path is [LiveCycle root]/fonts
- To change the default location of the **Customer fonts directory,** click **Browse** or specify a new location for your customer fonts.

  ***Note:** Your right to use fonts provided by parties other than Adobe is governed by the license agreements provided to you by such parties with those fonts, and is not covered under your license to use Adobe software. Adobe recommends that you review and ensure that you are in compliance with all applicable non-Adobe license agreements before using non-Adobe fonts with Adobe software, particularly with respect to use of fonts in a server environment.*
- (Optional) To change the default location of the **System fonts directory**, type the path or browse to the directory.
- (Optional) To enable FIPS, ensure that Enable **FIPS** is selected. Select this option only if you require the Federal Information Processing Standards (FIPS) to be enforced.

3 On the Configure LiveCycle ES4 (3 of 5) screen, accept the default location for the **Location of temporary directory**, or enter the path or click **Browse** to specify the path. The default location is `[LiveCycle root]/temp`. Click **Next** to continue.

4 On the Configure LiveCycle ES4 (4 of 5) screen, accept the default location for the **Global document storage directory path**, or click **Browse** to specify the fully qualified path. Click **Next** to continue.

The default location is `[LiveCycle root]/gds`.

5 On the Configure Persistent Document Storage (5 of 5) screen, select either **Use GDS** or **Use database**, and then click **Configure**.

- **Use GDS**: Use the file system based GDS for all persistent document storage. This option provides the best performance and a single location for GDS.
- **Use database**: Use the LiveCycle database for storing persistent documents and long-lived artifacts. However, the file-system based GDS is also required. Using the database simplifies backup and restore procedures.

Click **Next**.

4.4.2.5 Configuring Acrobat for PDF Generator

1 **(PDF Generator only)** On the Configure Acrobat For LiveCycle PDF Generator screen, click **Configure** to run the configuration script. When complete, click **Next**.

2 On the Configure LiveCycle Summary screen, click **Next**.

4.4.2.6 Configure CRX

In the **CRX Configuration** screen, specify the path to the repository and click **Configure** to create the required repository files at the specified location.

It configures the repository to bundle within the LiveCycle Core EAR file.

Click **Next** to continue.

Note: *A backup (adobe-jboss-core-ear.orig) for the original LiveCycle Core EAR file is taken in the [LiveCycle root]\deploy folder. You can restore the EAR file in case you want to run the set up again without the CRX repository.*

Note: *Once the packages are configured, you cannot remove them by re-running the Configuration Manager. For clean uninstallation of deployed packages, you need to uninstall and delete the packages using Package Manager.*

4.4.2.7 Configuring turnkey JBoss SSL

❖ On the Configure Turnkey JBoss SSL screen, add the information to configure the SSL certificate and click **Configure JBoss SSL**, when complete click **Next**.

You can skip this step by selecting the Skip Configuration and configure it later in LiveCycle Configuration Manager.

- **Certificate Alias:** The alternate unique name that is used to reference the certificate (for example, LiveCycleCert).
- **Keystore filename:** The name of the keystore that is assigned to store the keys and the certificate (for example, lces).

4.4.2.8 Install verification samples

❖ (**Adobe® LiveCycle® Forms Standard 11, Adobe® LiveCycle® Mobile Forms 11, Adobe® LiveCycle® Output 11, and PDF Generator only**) On the LiveCycle ES4 Installation Verification Sample (IVS) EAR files screen, you can install three service-specific sample applications. Select **Include IVS EARs in deployment set** and click **Next** to install these sample files.

`adobe-output-ivs-jboss.ear, adobe-mobileforms-ivs.ear,` and `adobe-forms-ivs-jboss.ear` appear only if you have selected respective modules on the Modules screen.

Note: *Do not deploy the IVS EAR files to a production environment.*

4.4.2.9 Deploying LiveCycle EARs

❖ On the Deploy LiveCycle ES4 EAR files screen, select the EAR files you want to deploy to JBoss, click **Deploy** and when complete, click **Next**.

Note: *During EAR files Deployment to LiveCycle, certain errors may be displayed regarding EARs being unable to locate the correct table. You may ignore these errors.*

4.4.2.10 LiveCycle Database Initialization

❖ On the LiveCycle ES4 Database Initialization screen, verify the host and port information, and then click **Initialize**. The database initialization task creates tables in the database, adds default data to the tables, and creates basic roles in the database. When the initialization completes successfully, and then click **Next**.

Do not skip this step. Database initialization does not harm legacy data.

4.4.2.11 LiveCycle Server Information

❖ On the LiveCycle ES4 information screen, type the LiveCycle ES4 User ID and password, and click **Verify Server Connection**. When the validation is complete, click **Next**.

Important: *By default, the LiveCycle ES4 User ID is* `administrator` *and the password is* `password`*. After completing the initial configuration, change the default password in Administration Console.*

The server information that appears on this screen represents default values for the deployment. Verifying the server connection helps narrow troubleshooting in case failures occur in the deployment or validation. If the connection test passes but deployment or validation fails in the next few steps, connectivity issues can be eliminated from the troubleshooting process.

4.4.2.12 Central Migration Bridge Service Deployment Configuration

❖ On Central Migration Bridge Service Deployment Configuration screen, select **Include Central Migration bridge service in deployment** if you are licensed to configure LiveCycle with Central Pro or Web Output Pak, and then click **Next.**

4.4.2.13 LiveCycle Components Deployment

1 On the LiveCycle ES4 Component Deployment screen, click **Deploy**. The components deployed at this time are Java archive files that plug into the LiveCycle service container for purposes of deploying, orchestrating, and executing services. When the deployment has completed successfully, click **Next**.

2 On the LiveCycle ES4 Component Deployment Validation screen, click **Validate**. Configuration Manager validates that the Java archive files are deployed to and running on the LiveCycle server. When the validation is completed successfully, click **Next**.

4.4.2.14 Configuring LiveCycle Components

❖ On the Configure LiveCycle ES4 Components screen, select the LiveCycle modules to configure, and then click **Next.** The screens that appear next depend on your selections on this screen.

4.4.2.14.1 Configure Connector for EMC Documentum

❖ On the Specify Client for EMC Documentum screen, do one of the following tasks:

- Deselect the **Configure Connector for EMC Documentum Content Server** option to manually configure EMC Documentum later, and then click **Next**.
- Leave the option selected, enter the appropriate version and directory path, and then click **Verify**. When complete, click **Next** and complete the tasks on the following screens:
  - On the Specify EMC Documentum Content Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for EMC Documentum screen, click **Configure Documentum Connector**. When complete, click **Next.**

4.4.2.14.2 Configure Connector for IBM Content Manager

❖ On the Specify Client for IBM Content Manager screen, do one of the following tasks:

- Deselect the **Configure Connector for IBM Content Manager** option to manually configure IBM Content Manager later, and then click **Next.**
- Leave the option selected, enter the appropriate directory path, and then click **Verify.** When complete, click **Next** and complete the tasks on the following screens:
  - On the Specify IBM Content Manager Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for IBM Content Manager screen, click **Configure IBM Content Manager Connector.** When complete, click **Next.**

4.4.2.14.3 Configure Connector for IBM FileNet

❖ On the Specify Client for IBM FileNet screen, do one of the following tasks:

- Deselect the **Configure Connector for IBM FileNet Content Manager** option to manually configure IBM FileNet later, and then click **Next.**
- Leave the option selected, enter the appropriate version and directory path, and then click **Verify**. When complete, click **Next** and complete the following screens:
  - On the Specify IBM FileNet Content Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for IBM FileNet Process Engine screen, enter the appropriate version (if enabled) and directory path, and then click **Verify.** When complete, click **Next**.
  - On the Specify IBM FileNet Process Engine Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for IBM FileNet screen, click **Configure FileNet Connector.** When complete, click **Next.**

4.4.2.14.4 Configure Connector for Microsoft SharePoint

❖ On the Configure Adobe LiveCycle 11 Connector for Microsoft SharePoint screen, do one of the following tasks:

- Deselect the **Configure Adobe LiveCycle ES4 Connector for Microsoft SharePoint** option to manually configure Microsoft Sharepoint later, and then click **Next.**
- Leave the **Configure Adobe LiveCycle ES4 Connector for Microsoft SharePoint** option selected. Enter the required values, and then click Configure SharePoint Connector. When complete, click **Next**.

4.4.2.14.5 Verifying Configuration for ECM Connectors

❖ On the Verify Configurations screen, do one of the following tasks:

- If you are configuring the connectors for the first time or have modified any of the configurations on the previous screens, leave the **Restart Application Server** option selected and click **Validate Configurations**. When successfully validated, click **Next**.

  Note: *The validation of IBM FIleNet may fail if there are special characters, such as hyphen (-), underscore (_), comma (,), or dot (.) in the directory name containing the IBM FileNet client.*

- If you wish to configure connectors later, deselect the **Restart Application Server** option and click **Validate Configurations**. When successfully validated, click **Next**.

4.4.2.14.6 Configuring PDF Generator

1 In the **Admin user credentials for native PDF conversions** screen box, enter the user name and password of a user with administrative privileges on the server machine. Click **Add user.**

  Add at least one administrative user for Windows 2008 Server and Click **Next**.

  Note: *On Windows 2008 Server, disable User Account Control (UAC) for the users you add. To disable UAC, click* ***Control Panel > User Accounts > Turn User Account Control on or off*** *and deselect* ***Use User Account Control (UAC) to help protect your computer****. Click* ***OK****. Your changes become effective when the system is restarted.*

  Important: *Ensure that you disable UAC for the users you add. See "3.3.2 Disable the Windows UAC on Vista and Windows Server 2008 R1" on page 6 or "3.3.3 Disable the Windows UAC on Windows 7 and Windows Server 2008 R2" on page 7, as applicable.*

2 In the Document Services PDF Generator System Readiness Test screen, click **Start** to validate if the system has been configured correctly for PDF Generator. Review the System Readiness Tool Report and click **Next**.

4.4.2.14.7 Configuring Reader Extensions Credential

❖ On the Reader Extensions Credential Configuration screen, specify the details that are associated with the Reader Extensions credential that activates the module services.

Note: *You can skip this step at this time by selecting* ***Configure later using LiveCycle ES4 Administration Console****. You can configure the Reader Extensions credential by using Administration Console after you complete the deployment. (After logging in to Administration Console, click* ***Home*** *>* ***Settings*** *>* ***Trust Store Management*** *>* ***Local Credentials****.)*

Click **Configure** and then click **Next**.

4.4.2.15 Task summary

Review the Configuration Manager task summary list and select **Next Steps** to launch an html page containing information about LiveCycle user and administrative interfaces. Click **Finish**.

Chapter 5: Installing and Configuring - Partial Turnkey

When installing LiveCycle, you can choose various installation and configuration options to help you customize your turnkey installation. Here are the turnkey installation options:

Partial Turnkey: Completes the configuration of LiveCycle using JBoss application server provided with the installer. However, this option allows you to configure your own database and point to this database during installation and configuration.

5.1 Checking the installer

Observe the following best practices with the installer files before you begin the installation process.

5.1.1 Check the DVD installation media

Ensure that the installation media that you received is not damaged. If you copy the installer media contents to the hard disk of your computer where you are installing LiveCycle, ensure that you copy the entire DVD contents on to the hard disk. To avoid installation errors, do not copy the DVD install image to a directory path that exceeds the Windows maximum path length limit.

5.1.2 Check the downloaded files

If you downloaded the installer from the Adobe website, verify the integrity of the installer file using the MD5 checksum. Use a tool such as WinMD5 to calculate and compare the MD5 checksum of the downloaded file with the checksum published on the Adobe download web page.

5.2 Installing LiveCycle

1 Do one of the following:

- From the download site, download and extract the entire JBoss_DVD.zip file (the LiveCycle Electronic Software Download or ESD file) to your file system. Be sure to keep the directory hierarchy unchanged from the JBoss_DVD.zip file.
  - After extracting the ZIP file, launch the installer using one of the following methods:
  - (32-bit systems)double-click the **install.exe** file from the \server\Disk1\InstData\Windows\VM folder
  - (64-bit systems) double-click the **install.exe** file from the \server\Disk1\InstData\Windows_64\VM folder
- From the JBoss DVD, navigate to the \server folder. Launch the installer using one of the following methods:
  - (32-bit systems)double-click the **install.exe** file from the \server\Disk1\InstData\Windows\VM folder
  - (64-bit systems) double-click the **install.exe** file from the \server\Disk1\InstData\Windows_64\VM folder

Note: *32-bit version is for development and evaluation purposes only.*

Note: *For 32-bit installation, ensure that Adobe_JAVA_HOME environment variable is set for the 32-bit version of JDK.*

2 When prompted, select the language for installation, and then click **OK**.

3 On the Introduction screen, click **Next**.

4 On the Preparation for Upgrade screen, do one of the following tasks:

- Select **Prepare to upgrade existing installation to Adobe LiveCycle ES4** to upgrade current installation to LiveCycle ES4.
- Select **Install Adobe LiveCycle ES4** to install LiveCycle ES4.

Note: *This screen appears only if you have previous version of LiveCycle installed.*

5 On the Choose Install Folder screen, accept the default directory as listed or click **Choose** and navigate to the directory where you want to install the product, and then click **Next**. This directory is referred to as *[LiveCycle root]*.

Note: *It is recommended that the installation directory path should not exceed 40 characters. And it must not contain international or special characters.*

6 On the Choose Installation Type screen, select the installation type and click **Next**:

- Select **Turnkey** under Typical as the installation type for a typical turnkey installation. Turnkey option installs LiveCycle, JBoss 5.1 application server, MySQL 5.1.30 database, and JDK 1.6.0_31, see "Installing and Configuring - Turnkey" on page 10
- Select **Partial Turnkey** under Custom if you want to use a database other than the preconfigured MySQL database and JDK. LiveCycle and the JBoss application server are installed by default.
- Select **Manual** if you do not want a turnkey installation but instead want a custom install using any database, application server, and JDK. This option is selected by default if you already have a JBoss application server and MySQL database installed on your system with their Windows service names identical to those created by the LiveCycle installer.

Note: *For Manual installations, see the Installing and Deploying LiveCycle guide for your application server. Also, review all preparatory steps in Preparing to Install LiveCycle before continuing.*

7 In the Database section:

- If installing a new database: select **Include the turnkey MySQL(5.0), click Next.**
- If using existing database: select **Use my Database** and select the database type you are using, click **Next**.

8 **(For MySQL provided with the installer only)** Set the MySQL root administrator password and, optionally, type your MySQL port number. This screen will appear only when **Include the Turnkey MySQL option** is selected.

Note: *MySQL does not allow special characters or spaces in the user name or password. Ensure that you record this password for future reference.*

- To verify that the port number is available for use, click **Test**. If the port is available, the installer displays a green check mark. If the port is in use, the installer displays a red X.
- If the port is in use, type a new port number and repeat the process until you find a port that is available. Clicking **Reset** populates the port box with the default port number *3306*.

9 Read the JBoss Application Server License Agreement and, if you agree, select **I accept** and then click **Next**.

10 (**For MySQL provided with the installer only**) Read the MySQL License Agreement and, if you agree, select **I accept**, and then click **Next**. This screen will appear only when **Include the Turnkey MySQL option** is selected.

11 Read the LiveCycle License Agreement and, if you agree, select **I accept**, and then click **Next**.

12 Review the pre-installation summary, and then click **Install**. The installation program displays the progress of the installation. This process takes several minutes to complete.

13 Review the Release Notes and click **Next**.

14 On the Install Complete screen, choose one of these options:

- If no service pack updates are required, ensure that **Start Configuration Manager** is selected, and then click **Done**.
- If service pack updates are required, deselect the **Start Configuration Manager** option and click **Done** to exit the installer.

Note: *If you deselect* ***Start Configuration Manager*** *and exit the installer, you can run Configuration Manager later by using the ConfigurationManager.bat file located in [LiveCycle root]\configurationManager\bin.*

5.3 Install service packs

Before you complete the configuration using Configuration Manager, apply the latest LiveCycle service packs. See Adobe Enterprise Support for details.

5.4 Creating the LiveCycle Database

Ensure that you set up the database for use with LiveCycle before Configuring LiveCycle for Partial Turnkey installations.

5.4.1 Database configuration requirements

This section describes how to set up the database for use with LiveCycle. This section describes special tables, indexes, and other properties that are required in the LiveCycle database that are not configured by Configuration Manager.

The database will contain these elements:

- LiveCycle services
- LiveCycle run-time configurations
- LiveCycle process data
- Customer process definitions and templates
- Application server managed data

Before you create the database, you must ensure that you read the pre-installation requirements and have the required software installed.

If this is the first installation of LiveCycle, you must create an empty database. All the tables required to support LiveCycle are created when you initialize the LiveCycle database using Configuration Manager. (See, Installing and Deploying LiveCycle for Jboss)

5.4.2 Creating an Oracle database

If you prefer not to use the default database that was created when you installed Oracle 11g, create a new database by using the Database Configuration Assistant tool. LiveCycle supports Oracle 11g on JBoss application server.

Note: *You can use the Transaction Processing or General Purpose templates while configuring an Oracle database instance for LiveCycle. If you wish to use the Custom Database template for configuring a database instance, the minimum set of database components you must include are* ***Oracle JVM*** *and* ***Enterprise Manager Repository****.*

Do the following when you create your Oracle database:

- Set the initial database size to a minimum of 500 MB.
- Create user quotas to allow the database to grow to accommodate persistent data from LiveCycle applications.
- Enable support for UTF-8 encoding.
- Set Database Character Set to Unicode (AL32UTF8), and the National Character Set is AL16UTF16 (Unicode UTF-16 universal character set).
- Set NLS_LENGTH_SEMANTICS to BYTE (if required). The database initialization fails if you set any other value.
- You must install Oracle using Transaction Processing and set the connection mode for the server to Dedicated Processing.

5.4.2.1 User account and rights

Create a new user account on the database and assign it the following system privileges:

- CREATE SEQUENCE
- CREATE VIEW
- UNLIMITED TABLESPACE
- CREATE TABLE
- CREATE CLUSTER
- CREATE SESSION

For deployments on AIX, Linux, or Solaris , the user name must not exceed 8 characters; on Windows, it must not exceed 12 characters.

You need the following information when you configure the data source on the application server:

- SID (Service ID)
- User name and password of the Oracle user account
- Host name or IP address of the database server
- Oracle LISTENER port number (default is 1521)

For information about using Oracle 11g, see the appropriate user documentation.

5.4.3 Creating a SQL Server database

You can create a SQL Server database that LiveCycle will use to store run-time and configuration data. For information about creating a SQL Server database, refer to the SQL Server documentation. LiveCycle supports SQL Server 2005 SP2 and 2008 R2 (English and Japanese).

Create a SQL Server database, and create a user account and assign it DB_OWNER privileges for use when configuring the data source on the application server. For information about creating the database and user, see the SQL Server documentation.

You need the following information when you configure the data source on the application server:

- Database name

- User name and password of the SQL Server user account
- Host name or IP address of database server
- SQL Server port number

5.4.3.1 Set up SQL Server for LiveCycle

Before you create the LiveCycle database, optimize SQL Server by changing these settings.

5.4.3.1.1 Increase memory

The default SQL Server settings do not aggressively allocate memory. This situation significantly affects performance on most deployments of a SQL Server database.

Note: *This section is recommended but optional.*

1. Using Microsoft SQL Server Management Studio, connect to the database server where you will host the LiveCycle database.
2. Right-click the database server connection and select **Properties**.
3. Select the **Memory** page and enter a size in the **Minimum Server Memory (in MB)** box that is equal to the size of the free memory on the server.
4. Restart the SQL Server database.

5.4.3.1.2 Set the processor priority

On dedicated database servers, which are recommended for production installations of LiveCycle, the SQL Server process is configured so that it does not consume too much of the system CPU resources.

Note: *This section is recommended but optional.*

1. Using Microsoft SQL Server Management Studio, connect to the database server where you will host the LiveCycle database.
2. Right-click the database server connection and select **Properties**.
3. Select the **Processors** page and select **Boost SQL Server Priority**.
4. Restart the SQL Server database.

5.4.3.1.3 Increase the recovery interval

This setting specifies the amount of time the deployment waits for recovery after a crash. The SQL Server default setting is one minute. Increasing this setting to a larger value improves performance because it causes the server to write changes from the database log to the database files less frequently. This setting does not compromise the transactional behavior; however, it does affect the size of the log file that is replayed on startup.

Note: *This section is recommended but optional.*

1. Using Microsoft SQL Server Management Studio, connect to the database server where you will host the LiveCycle database.
2. Right-click the database connection and select **Properties**.
3. Select the **Database Settings** page and type `5` in the **Recovery Interval (Minutes)** box.
4. Restart the SQL Server database.

5.4.3.2 Integrated security

Note: *This is an optional configuration.*

If you are using SQL Server integrated security, you can set your SQL Server database to Mixed Mode or Windows Authentication Mode. However, if you are using Windows Authentication Mode, you must configure integrated security on Windows to establish a trusted connection with SQL Server (see "5.4.3.2.1 Map the Windows login to the LiveCycle database user" on page 27).

Note: *Configuration Manager fails to validate the database connection if you use Windows Authentication Mode. Therefore, for partial turnkey installation, the authentication type must be set to SQL Server. You can turn on the Windows Authentication Mode once Configuration Manager completes validating the database connection.*

5.4.3.2.1 Map the Windows login to the LiveCycle database user

1. Using Microsoft SQL Server Management Studio, connect to the database server that hosts the LiveCycle database.
2. Set the Authentication mode to **Windows authentication**.
3. Under **Security** > **Logins**, create a new account for the Windows domain user and select Windows authentication.
4. Click **User Mapping** on the Login - New screen and set the database and default schema for the new user.
5. Select **db_owner** as the Database role and click **OK**.

To verify that you created the user, expand the LiveCycle database in the tree and open **Security** > **Users**. The new user appears in the list of users.

5.4.3.2.2 Install the SQL Server database driver

Note: *If you have not done so already, download the SQL Server JDBC Driver 4.0 (for all platforms) from the Microsoft Download Center location on the Microsoft website. Ensure that you install the SQL Server database driver on the server where you plan to install LiveCycle.*

Follow the instructions on the website for downloading and installing the driver. Make a note of the directory location where you install the driver on your system.

Note: *Use SQL Server JDBC Driver 4.0 for both Microsoft SQL Server 2005 SP2 and Microsoft SQL Server 2008.*

5.4.3.2.3 Configure integrated security on Windows

Note: *You must run the JBoss service as the Windows user configured in "5.4.3.2.1 Map the Windows login to the LiveCycle database user" on page 27. If JBoss is not running as a service, you must log in to Windows as that particular user before you start JBoss from a command prompt.*

1. Modify the adobe-ds.xml and mssql-ds.xml files, located in [appserverroot]\server\lc_sqlserver\deploy, to add `integratedSecurity=true` to the connection URL as shown in this example:
   `jdbc:sqlserver://<hostname>:<port>;databaseName=<db-name>;integratedSecurity=true`
2. Replace the values shown in bold in the above example with values appropriate to your database server.
3. Add the sqljdbc_auth.dll file to the Windows systems path (C:\Windows) on the computer that is running JBoss. The sqljdbc_auth.dll file is located within the Microsoft SQL JDBC 3.0 driver installation The default location is `[SQL_root]/sqljdbc_3.0/enu/auth/x86` for 32-bit operating systems and `[SQL_root]/sqljdbc_3.0/enu/auth/x64 for 64-bit` operating systems.

   Note: *Use SQL Server JDBC Driver 3.0 for Microsoft SQL Server 2008.*
4. Open the properties for the JBoss for Adobe LiveCycle ES4 service or the JBoss service that you configured, and click the Log On tab.
5. Select ThisAccount and type the value of the user account that you mapped in "5.4.3.2.1 Map the Windows login to the LiveCycle database user" on page 27. If you are running JBoss from the command line, you must be logged in as this user.

5.4.3.3 Sizing your SQL Server database

The default database sizes that SQL Server provides are too small for LiveCycle. Even if the database is set to auto-grow, unintended effects can occur, such as reduced performance when the database grows or the growth begins to fragment the disk. It is best to preallocate the database size at creation to reflect your deployment requirements:

Medium size deployments: Environments where the LDAP directory has approximately 100,000 users and 10,000 groups. Set Database Data Initial Size to 1 GB, and set autogrowth to 250 MB.

Large size deployments: Environments where the LDAP directory has approximately 350,000 users and more than 10,000 groups. Set Database Data Initial Size to 2 GB, and set autogrowth to 1 GB.

Note: *Database growth is always restricted to a certain size. Administrators should monitor the resource usage of the LiveCycle database to ensure that it does not lose its restricted space or the space available on the disks where the database resides.*

5.4.3.4 Creating the LiveCycle database user, schema, and login

You are now ready to create the LiveCycle database user, schema, and login.

Important: *Ensure that you use the SQL_Latin1_General_CP1_CI_AS collation (or the Japanese_CI_AS collation if your database will run in a Japanese environment) when you create the database instance for LiveCycle. Any other collation may cause your database initialization to fail. The collation for your LiveCycle database instance can be different from the collation used when creating the SQL Server database.*

1 Using Microsoft SQL Server Management Studio, click **Server**, and then right-click **Database** and select **New Database**.

2 Enter the database name of your choice.

   Note: *The database name is very important, and the name chosen must be consistently used in the following procedures where a reference to* `database_name` *exists.*

3 **(SQL Server 2005 Only)** Ensure that **Use Full-Text Indexing** is deselected.

4 In the **Database Data Initial Size MB** box, enter the appropriate value:

   - For small development or small production systems, specify 200 MB.
   - For larger systems, see "5.4.3.3 Sizing your SQL Server database" on page 28.

5 In the **Database DataAutogrowth** box, enter 50%.

6 In the **Database LogInitial Size** box, enter the appropriate value:

   - For small development or small production systems, specify 20 MB.
   - For larger systems, see "5.4.3.3 Sizing your SQL Server database" on page 28.

7 In the **Database LogAutogrowth** box, enter 50%.

8 Click **OK** to create the database.

5.4.3.4.1 Create the LiveCycle user in SQL Server

In the following procedure, *[database_name]* represents the name you specified when you created your database, and *[database_username]* represents the name you must specify for the new user.

1 Using Microsoft SQL Server Management Studio, connect to the database server where you created the LiveCycle database.

2 Click **Server** > **Security**, and then right-click **Logins** and select **New Login**.

3 Enter the login name *[database_username]*, and then select **SQL Server Authentication** and type a new password.

4 Ensure that **Enforce Password Expiration, User must change password on next login** is also deselected.

5 Leave the default database as **Master**, and click **OK**.

6 Click **Server** > **Databases** > *[database_name]* > **Security**, and then right-click **Schemas** and select **New Schema**.

7 In the **Schema Name** box, type *[database_username]*, and click **OK**.

8 Click **Server** > **Databases** > *[database_name]* > **Security**, and then right-click **Users** and select **New User**.

9 In the New User dialog box, type the login name and user name *[database_username]*.

10 Set the default schema to *[database_username]* and click **OK**.

Note: *The schema name should be the same as the [database_username].*

11 (***SQL Server 2008 R2***) In the **Schemas Owned By This User** area, select the schema *[database_username]*.

12 Click **Server** > **Databases** > [*database_name*] > **Security**, right-click the *[database_username]* schema, and select **Properties** > **Permissions**.

   a Click **Search** in Users or Roles and type [*database_username*]and click **OK**.

   b In the **Explicit** tab, grant the following permissions:

   - Alter
   - Insert
   - Reference
   - Select
   - Update
   - Delete

   c Click **OK**.

13 Right-click **Server** > **Databases** > [*database_name*], right-click the [*database_username*] schema, and select **Properties > Permissions**.

   a In the **Explicit** tab, grant Create Table, Create View, and Connect permissions.

   b Click **OK**.

5.4.3.4.2 Associate the LiveCycle user with the database

After you create the LiveCycle user, associate it with the LiveCycle database.

1 Click **Security** > **Logins**, and then right-click *[database_username]* and select **Properties**.

2 In Login Properties, on the General page, set the user's default database to *[database_name]*.

3 Select the **User Mapping** page and, in the Users Mapped To This Login section, verify that *[database_name]* is selected, **User** is set to *[database_username]*, and **Default Schema** is set to *[database_username]*.

4 Ensure that *[database_name]* is selected in the Users Mapped To This Login table, and ensure that **public** is selected in the **Database Role Membership For***[database_name]* table, and then click **OK**.

5.4.3.4.3 Set the isolation level for the LiveCycle database

LiveCycle requires a specific isolation level to manage deadlocking when long-running transactions occur at the same time as numerous shorter reads.

Important: *You must set the isolation level for MS SQL Server to avoid deadlocking issues.*

1 Click **Databases**, and then right-click *[database_name]* and select **New Query**.

Note: *[database_name] represents the name you specified when you created your database.*

2 In the Query panel, type the following text:

```
ALTER DATABASE [database_name] SET READ_COMMITTED_SNAPSHOT ON GO
```

3 Click **Execute**. A response is displayed in the messages panel.

5.4.4 Creating a MySQL database

Note: *The information contained in this document is meant for users who are installing MySQL manually and not for a full turnkey installation. See Installing and Deploying Adobe LiveCycle ES4 Using JBoss Turnkey*

Use the MySQL tools to create a MySQL 5 database for use with LiveCycle and a MySQL user account that the application server can use to connect to the database. You also must modify the MySQL database server configuration. For information about creating the database and user account, see the MySQL documentation. LiveCycle supports MySQL 5 with JBoss 5.1.

Note: *MySQL does not support the use of special characters or spaces in the user name or password. Ensure that your user name and password adhere to this restriction. Also, to avoid Scheduler errors, do not use a dash (-) in the MySQL database name.*

Note: *On AIX, Linux, or Solaris, you must set the lower_case_table_names system variable to 1 to ensure that table names are case-insensitive. On Windows systems, this parameter does not have any effect. For more information about setting table names for case-sensitivity, see http://dev.mysql.com/doc/refman/5.1/en/identifier-case-sensitivity.html.*

Note: *To set up a database schema and new users on MySQL by using a graphical user interface (GUI), you must install the MySQL Administrator tool. (See the MySQL user documentation.)*

When installing the MySQL database, you must specify UTF-8 character encoding in the Variables section of the MYSQL UI.

You need the following information when you configure the data source on JBoss:

- User name and password of the MySQL user account
- Host name or IP address of database server
- MySQL port number

5.4.4.1 Limitation on document usage in processes for MySQL databases

The MySQL database limits the amount of data that can be stored in a table row. Processes that involve multiple instances of documents can require more storage space than the MySQL row size limitation. Because LiveCycle stores data for a process instance in a single table row, processes that involve large amounts of data can exceed the MySQL limitation on row size, causing errors to occur.

If you run a process that involves many instances of documents and errors occur in the database, you can redesign the process so that the operations that handle documents execute in several subprocesses. For example, you can redesign your process so that its operations are executed in two processes. The first process includes the first half of the operations of the original process, and the second process includes the last half of the operations. The first process must include the invoke operation of the second process so that the second process runs as a subprocess.

5.4.4.2 MySQL user account

The MySQL user account that you create must have these privileges to access the tables in the LiveCycle database:

- SELECT

- INSERT
- UPDATE
- DELETE
- CREATE
- DROP
- REFERENCES
- INDEX
- ALTER
- CREATE_TMP_TABLE
- LOCK_TABLES

5.4.4.3 MySQL initial server configuration requirements

The following configuration setting is required in the `mysqld` section of the my.ini file (Windows) or /etc/my.cnf file (AIX, Linux, or Solaris):

- max_allowed_packet=25M

  Note: *Failure to configure this setting will result in "packet too large" errors that will cause module deployment to fail.*

  These configuration settings are recommended in the `mysqld` section of the my.ini file (Windows) or /etc/my.cnf file (AIX, Linux, or Solaris):

- key_buffer_size=64M
- sort_buffer_size=1M
- default-storage-engine= INNODB
- innodb_buffer_pool_size=100M
- innodb_additional_mem_pool_size=5M
- innodb_log_file_size=170M
- innodb_log_buffer_size=8M
- innodb_flush_log_at_trx_commit=2
- query_cache_type=2
- default-character-set=utf8
- read_buffer_size=1M
- read_rnd_buffer_size=1M

5.5 Configuring LiveCycle

Now that LiveCycle is installed on the computer, you should run Configuration Manager to complete the configuration. You may choose to run Configuration Manager in Express Mode or Custom.

- See, "5.5.1 Configuring LiveCycle using Partial Turnkey Express mode" on page 32 for step-by-step instructions to run Configuration Manager in Express Mode.

- See, "5.5.2 Configuring LiveCycle using Partial Turnkey Custom Mode" on page 35 for step-by-step instructions to run Configuration Manager in Custom Mode.

5.5.1 Configuring LiveCycle using Partial Turnkey Express mode

Note: *Press **F1** in Configuration Manager to view Help information for the screen you are viewing. You can view the configuration progress at any time by clicking View Progress Log.*

Note: *During configuration, if you must reset the data in Configuration Manager by using the Reset to Default option, ensure that you relaunch the Configuration Manager. Otherwise, you may encounter some missing configuration screens.*

1. If you are continuing from the LiveCycle installation, proceed to step 3; otherwise, navigate to the *[LiveCycle root]*\configurationManager\bin folder and run the ConfigurationManager.bat script.
2. When prompted, select the language to use, and then click **OK**.
3. On the Welcome to Adobe LiveCycle ES4 screen, click **Next**.
4. On the Upgrade Task Selection screen, ensure that **Upgrade from LiveCycle ES Update 1**, and **Upgrade from LiveCycle ES2 or LiveCycle ES2.5** are deselected. If you are performing a LiveCycle ES4 upgrade, review the appropriate LiveCycle turnkey upgrade guide.
5. On the Correspondence Management Solution Selection screen, Correspondence Management Solution option is selected by default. With this option selected, you will be presented with the configuration screens to configure Correspondence Management Solution.

   Click Next to continue.

5.5.1.1 Configuring data source and Application Server

1. On Flexible Turnkey Installation screen, do one of the following tasks
   - Leave the **Skip dataSource configuration** option deselected to configure the data source, and then click **Next.**
   - Select the **Skip dataSource configuration** option if you have already configured the data source, and click **Next.**

   This screen will appear only if you have already configured the datasource.
2. On the Datasource configuration screen, enter the appropriate information to configure the database connection string and click **Test Database Connection** to ensure that the connection is configured properly.

   Note: *If the database server is not running or is not set up yet, you can still configure the data source; however, the Test Database Connection will result in a failure message.*
3. On the Application Server configuration screen, click **Configure**, and then click **Next.**

Important: *If you are using the SQL Server database, ensure that you turn on the Windows Authentication Mode for SQL Server after configuring application server on this screen. For detailed steps, see "5.4.3.2 Integrated security" on page 26.*

5.5.1.2 Select Configuration Mode and Correspondence Management Solution

1. On the Turnkey Mode screen, select **Express Mode** (recommended for quick deployments) and click **Next** to proceed to the next section.
2. On the Correspondence Management Solution Selection screen, select the Correspondence Management Solution and then click **Next**. This screen appears only if have already installed the Correspondence Management Solution.

5.5.1.3 Select modules

1 On the Modules screen, ensure that the Adobe LiveCycle modules that you have licensed and want to deploy are selected, and then click **Next**.

Note: *You do not need to deploy all of your licensed modules at the same time. You can rerun Configuration Manager later to deploy more modules.*

2 On the Configure Turnkey JBoss SSL screen, add the information to configure the SSL certificate and click **Configure JBoss SSL**, when complete click **Next.**

You can skip this step and configure it later in the LiveCycle Configuration Manager.

- **Certificate Alias:** The alternate unique name that is used to reference the certificate (for example, LiveCycleCert).
- **Keystore filename:** The name of the keystore that is assigned to store the keys and the certificate (for example, lces).

3 In the **CRX Configuration** screen, specify the path to the CRX repository click **Configure** to create the required repository files at the specified location. Default location for content repository is *[Livecycle root]*/crx-repository.

It configures the repository to bundle within the LiveCycle Core EAR file.

Click **Next** to continue.

A backup (adobe-jboss-core-ear.orig) for the original LiveCycle Core EAR file is taken in the [LiveCycle root]\deploy folder. You can restore the EAR file in case you want to run the set up again without the CRX repository.

Note: *Once the packages are configured, you cannot remove them by re-running the Configuration Manager. For clean uninstallation of deployed packages, you need to uninstall and delete the packages using Package Manager.*

5.5.1.4 Install verification samples

❖ (**Adobe® LiveCycle® Forms Standard 11, Adobe® LiveCycle® Mobile Forms 11, Adobe® LiveCycle® Output 11, and PDF Generator only**) On the LiveCycle ES4 Installation Verification Sample (IVS) EAR files screen, you can install three service-specific sample applications. Select **Include IVS EARs in deployment set** and click **Next** to install these sample files.

`adobe-output-ivs-jboss.ear, adobe-mobileforms-ivs.ear,` and `adobe-forms-ivs-jboss.ear` appear only if you have selected respective modules on the Modules screen.

Note: *Do not deploy the IVS EAR files to a production environment.*

5.5.1.5 Configure Connector for EMC Documentum

❖ On the Specify Client for EMC Documentum screen, do one of the following tasks:

- Deselect the **Configure Connector for EMC Documentum Content Server** option to manually configure EMC Documentum later, and then click **Next**.
- Leave the option selected, enter the appropriate version and directory path, and then click **Verify**. When complete, click **Next** and complete the tasks on the following screens:
  - On the EMC Documentum Content Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for EMC Documentum screen, click **Configure Documentum Connector**. When complete, click **Next.**

5.5.1.6 Configure Connector for IBM Content Manager

❖ On the Specify Client for IBM Content Manager screen, do one of the following tasks:

- Deselect the **Configure Connector for IBM Content Manager** option to manually configure IBM Content Manager later, and then click **Next.**
- Leave the option selected, enter the appropriate directory path, and then click **Verify.** When complete, click **Next** and complete the tasks on the following screens:
  - On the IBM Content Manager Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for IBM Content Manager screen, click **Configure IBM Content Manager Connector.** When complete, click **Next.**

5.5.1.7 Configure Connector for IBM FileNet

❖ On the Specify Client for IBM FileNet screen, do one of the following tasks:

- Deselect the **Configure Connector for IBM FileNet Content Manager** option to manually configure IBM FileNet later, and then click **Next.**
- Leave the option selected, enter the appropriate version and directory path, and then click **Verify**. When complete, click **Next** and complete the following screens:
  - On the IBM FileNet Content Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for IBM FileNet Process Engine screen, enter the appropriate version (if enabled) and directory path, and then click **Verify.** When complete, click **Next**.
  - On the IBM FileNet Process Engine Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for IBM FileNet screen, click **Configure FileNet Connector.** When complete, click **Next.**

5.5.1.8 Configure Connector for Microsoft SharePoint

On the Configure Connector for Microsoft SharePoint screen, do one of the following tasks:

- Deselect the **Configure Connector for Microsoft SharePoint** option to manually configure Microsoft Sharepoint later, and then click **Next.**
- Leave the **Configure Connector for Microsoft SharePoint** option selected. Enter the required values, and then click Configure SharePoint Connector. When complete, click **Next**.

5.5.1.9 Verify Configuration for ECM Connectors

On the Verify Configurations screen, do one of the following

- If you are configuring the connectors for the first time or have modified any of the configurations on the previous screens, leave the **Restart Application Server** option selected and click **Validate Configurations**. When successfully validated, click **Next**.
- If you wish to configure connectors later, deselect the **Restart Application Server** option and click **Validate Configurations**. When successfully validated, click **Next**.

5.5.1.10 PDF Generator configuration

1 In the **Administrator user credentials for native PDF conversions** screen, enter the user name and password of a user with administrative privileges on the server machine. Click **Add user.**

Add at least one administrative user for Windows 2008 Server and Click **Next**.

Note: *On Windows 2008 Server, disable User Account Control (UAC) for the users you add. To disable UAC, click* ***Control Panel > User Accounts > Turn User Account Control on or off*** *and deselect* ***Use User Account Control (UAC) to help protect your computer****. Click* ***OK****. Your changes become effective when the system is restarted.*

2 In the LiveCycle PDFGenerator System Readiness Test screen, click **Start** to validate if the system has been appropriately configured for PDF Generator.

3 Review the System Readiness Tool Report and click **Next**.

5.5.1.11 Configure Reader Extensions Credentials

❖ In the **Reader Extensions Credential Configuration** screen, choose one of these options:

- Browse and select a Reader Extensions credential file. Enter the Credential Password and name for the credential. Click **Next**.
- Skip this step by selecting **Configure Later Using LiveCycle ES4 Administration Console** and click **Next**. You can configure the Rights credential from Administration Console (**Settings** > **Trust Store Management** > **Local Credentials**).

5.5.1.12 Task summary

1 Review the Configuration Manager task summary list and select **Launch Next Steps** to launch an html page containing step-by-step instructions to start and use LiveCycle.

2 After you finish configuring LiveCycle, complete the post-deployment activities that apply to your solution implementation. (See "Post-Deployment Activities" on page 41)

3 If you reconfigured SSL or you are running Configuration Manager on a server where you have already configured LiveCycle you must restart JBoss for the SSL configuration to take effect.

5.5.2 Configuring LiveCycle using Partial Turnkey Custom Mode

Note: *Press* ***F1*** *in Configuration Manager to view Help information for the screen you are viewing. You can view the configuration progress at any time by clicking View Progress Log.*

Note: *During configuration, if you must reset the data in Configuration Manager by using the Reset to Default option, ensure that you relaunch the Configuration Manager. Otherwise, you may encounter some missing configuration screens.*

5.5.2.1 Configure LiveCycle using Custom Mode

1 If you are continuing from the LiveCycle installation, proceed to step 3; otherwise, navigate to the *[LiveCycle root]*\configurationManager\bin folder and run `ConfigurationManager.bat`.

2 When prompted, select the language to use, and then click **OK**.

3 On the Welcome to Adobe LiveCycle ES4 screen, click **Next**.

4 On the Upgrade Task Selection screen, ensure that **Upgrade from LiveCycle ESU1**, and **Upgrade from LiveCycle ES2 or ES2.5** are deselected. If you are performing a LiveCycle ES4 upgrade, review the appropriate LiveCycle turnkey upgrade guide.

5.5.2.2 Configuring data source and Application Server

1 On Flexible Turnkey Installation screen, do one of the following tasks:

- Leave the **Skip dataSource configuration** option deselected to configure the data source, and then click **Next.**
- Select the **Skip dataSource configuration** option if you have already configured the data source, and click **Next.**

This screen will appear only if you have already configured the datasource.

2 On the Datasource configuration screen, enter the appropriate information to configure the database connection string and click **Test Database Connection** to ensure that the connection is configured properly.

Note: *If the database server is not running or is not set up yet, you can still configure the data source; however, the Test Database Connection will result in a failure message.*

3 On the Application Server configuration screen, click Configure, and then click **Next.**

Important: *If you are using the SQL Server database, ensure that you turn on the Windows Authentication Mode for SQL Server after configuring application server on this screen. For detailed steps, see "5.4.3.2 Integrated security" on page 26.*

5.5.2.3 Select Configuration Mode

❖ On the Turnkey Mode screen, select **Custom Mode** and click **Next** to proceed to the next section. Custom Mode allows you to customize the system configuration and requires some additional knowledge.

5.5.2.4 Select modules

❖ On the Modules screen, ensure that the LiveCycle modules that you have licensed and want to deploy are selected, and then click **Next**.

Note: *You do not need to deploy all of your licensed modules at the same time. You can rerun Configuration Manager later to deploy more modules.*

Note: *Some modules have technical dependencies on other modules for proper configuration and functioning. Configuration Manager displays a dialog and does not allow to proceed further if mutually dependent modules are not selected. For example, you must select Adobe LiveCycle Forms, Adobe LiveCycle Output, and Content Repository modules if you are configuring Correspondence Management Solution.*

5.5.2.5 Selecting Tasks

On the Task Selection screen, ensure that all the available tasks are selected, and then click **Next.**

Note: *The **Configure Application Server** and **Validate Application Server Configuration** tasks are not available for selection for JBoss turnkey. The JBoss turnkey method does not support these tasks because the application server is already configured for LiveCycle.*

5.5.2.6 Configuring LiveCycle EAR, Fonts, and GDS

1 On the Configure LiveCycle (1 of 5) screen, click **Configure** and, when the EAR files have been configured, click **Next**. Depending on the number of modules that are included in the configuration, this process may take several minutes to complete.

2 On the Configure LiveCycle (2 of 5) screen, set the directories that LiveCycle will use to access fonts and then click **Next.**

Edit the configuration only if you are required to change any of the values on this screen.

- (Optional) To change the default location of the **Adobe server fonts directory**, type the path or browse to the directory. The default path is [LiveCycle root]/fonts.
- In the **Customer fonts directory** box, you can choose to specify a new location for your customer fonts.

  Note: *Your right to use fonts provided by parties other than Adobe is governed by the license agreements provided to you by such parties in connection with those fonts, and is not covered under your license to use Adobe software. Adobe recommends that you review and ensure that you are in compliance with all applicable non-Adobe license agreements before using non-Adobe fonts with Adobe software, particularly with respect to use of fonts in a server environment.*

- (Optional) To change the default location of the **System fonts directory**, type the path or browse to the directory.
- (Optional) To enable FIPS, ensure that Enable **FIPS** is selected. Select this option only if you require the Federal Information Processing Standards (FIPS) to be enforced.

  Note: *Any modification to the System fonts directory or Enable FIPS values made on this screen will not be configured during an upgrade process. You must manually update your system fonts directories and enable the FIPS option in Administration Console after configuration is complete. See "Core Configurations" in the LiveCycle Administration Help.*

3 On the Configure LiveCycle (3 of 5) screen, accept the default location for the **Location of the temporary directory**, or enter the path or browse to it. The default location is `[LiveCycle root]/temp`. Click **Next** to continue.

4 On the Configure LiveCycle (4 of 5) screen, accept the default location for the **Global document storage directory path**, or click **Browse** to specify the fully qualified path. Click **Next** to continue.

The default location is `[LiveCycle root]/gds`.

5 On the Configure Persistent Document Storage (5 of 5) screen, select either **Use GDS** or **Use Database.** Click **Configure** to configure the persistent document storage method and when the process has finished, click **Next**

5.5.2.7 Configuring Acrobat For PDF Generator

1 **(PDF Generator only)** On the Configure Acrobat For LiveCycle PDF Generator screen, click **Configure** to run the configuration script. When complete, click **Next**.

2 On the Configure LiveCycle Summary screen, click **Next**.

5.5.2.8 Configure turnkey JBoss SSL

On the Configure Turnkey JBoss SSL screen, add the information to configure the SSL certificate and click **Configure JBoss SSL,** when complete click **Next**.

You can skip this step if you have not installed Reader Extensions and configure it later in the Administration Console.

- **Certificate Alias:** The alternate unique name that is used to reference the certificate (for example, LiveCycleCertCert).
- **Keystore filename:** The name of the keystore that is assigned to store the keys and the certificate (for example, lces).

5.5.2.9 Install verification samples

❖ (**Adobe® LiveCycle® Forms Standard 11, Adobe® LiveCycle® Mobile Forms 11, Adobe® LiveCycle® Output 11, and PDF Generator only**) On the LiveCycle ES4 Installation Verification Sample (IVS) EAR files screen, you can install three service-specific sample applications. Select **Include IVS EARs in deployment set** and click **Next** to install these sample files.

`adobe-output-ivs-jboss.ear, adobe-mobileforms-ivs.ear,` and `adobe-forms-ivs-jboss.ear` appear only if you have selected respective modules on the Modules screen.

Note: *Do not deploy the IVS EAR files to a production environment.*

5.5.2.10 Deploy LiveCycle EARs

On the Deploy LiveCycle ES4 EAR files screen, select the EAR files you want to deploy to JBoss, click **Deploy** and when complete, click **Next**.

5.5.2.11 LiveCycle Database Initialization

On the LiveCycle Database Initialization screen, verify the host and port information, and then click **Initialize**. The database initialization task creates tables in the database, adds default data to the tables, and creates basic roles in the database. When the initialization completes successfully, click **OK** on the dialog and manually restart the JBoss server and then click **Next**.

Note: *Do not skip this step. Initialization does not harm legacy data.*

5.5.2.12 LiveCycle server Information

On the LiveCycle information screen, type the LiveCycle ES4 User ID and password, and click **Verify Server Connection**. When the validation is complete, click **Next**.

Important: *By default, the LiveCycle ES4 User ID is* `administrator` *and the password is* `password`*. After completing the initial configuration, change the default password in Administration Console.*

The server information that appears on this screen represents default values for the deployment. Verifying the server connection helps narrow troubleshooting in case failures occur in the deployment or validation. If the connection test passes but deployment or validation fails in the next few steps, connectivity issues can be eliminated from the troubleshooting process.

5.5.2.13 Central Migration Bridge Service Deployment Configuration

Select **Include Central Migration Bridge service in deployment** if you are licensed to configure LiveCycle with Central Pro or Web Output Pak, and then click **Next.**

5.5.2.14 LiveCycle Components Deployment

1 On the LiveCycle Component Deployment screen, click **Deploy**. The components deployed at this time are Java archive files that plug into the service container that is part of LiveCycle for purposes of deploying, orchestrating, and executing services. When the deployment has completed successfully, click **Next**.

2 On the LiveCycle Component Deployment Validation screen, click **Validate**. Configuration Manager validates that the Java archive files are deployed to and running on the LiveCycle server. When the validation is completed successfully, click **Next**.

5.5.2.15 Configuring LiveCycle Components

On the Configure LiveCycle Components screen, select the LiveCycle modules to configure, and then click **Next.** The screens that appear next depend on your selection on this screen.

5.5.2.15.1 Configure Connector for EMC Documentum

❖ On the Specify Client for EMC Documentum screen, do one of the following tasks:

- Deselect the **Configure Connector for EMC Documentum Content Server** option to manually configure EMC Documentum later, and then click **Next**.
- Leave the option selected, enter the appropriate version and directory path, and then click **Verify**. When complete, click **Next** and complete the tasks on the following screens:
  - On the EMC Documentum Content Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for EMC Documentum screen, click **Configure Documentum Connector**. When complete, click **Next.**

5.5.2.15.2 Configure Connector for IBM Content Manager

❖ On the Specify Client for IBM Content Manager screen, do one of the following tasks:

- Deselect the **Configure Connector for IBM Content Manager** option to manually configure IBM Content Manager later, and then click **Next.**
- Leave the option selected, enter the appropriate directory path, and then click **Verify.** When complete, click **Next** and complete the tasks on the following screens:
  - On the IBM Content Manager Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for IBM Content Manager screen, click **Configure IBM Content Manager Connector.** When complete, click **Next.**

5.5.2.15.3 Configure Connector for IBM FileNet

❖ On the Specify Client for IBM FileNet screen, do one of the following tasks:

- Deselect the **Configure Connector for IBM FileNet Content Manager** option to manually configure IBM FileNet later, and then click **Next.**
- Leave the option selected, enter the appropriate version and directory path, and then click **Verify**. When complete, click **Next** and complete the following screens:
  - On the IBM FileNet Content Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for IBM FileNet Process Engine screen, enter the appropriate version (if enabled) and directory path, and then click **Verify.** When complete, click **Next**.
  - On the IBM FileNet Process Engine Server Settings screen, enter the required values and then click **Next.**
  - On the Configure Connector for IBM FileNet screen, click **Configure FileNet Connector.** When complete, click **Next.**

5.5.2.15.4 Configure Connector for Microsoft SharePoint

On the Configure Connector for Microsoft SharePoint screen, do one of the following tasks:

- Deselect the **Configure Connector for Microsoft SharePoint** option to manually configure Microsoft Sharepoint later, and then click **Next.**
- Leave the **Configure Connector for Microsoft SharePoint** option selected. Enter the required values, and then click Configure SharePoint Connector. When complete, click **Next**.

5.5.2.15.5 Verify Configuration for ECM Connectors

On the Verify Configurations screen, do one of the following tasks:

- If you are configuring the connectors for the first time or have modified any of the configurations on the previous screens, leave the **Restart Application Server** option selected and click **Validate Configuration**s. When successfully validated, click **Next**.
- If you wish to configure connectors later, deselect the **Restart Application Server** option and click **Validate Configurations**. When successfully validated, click **Next**.

5.5.2.15.6 PDF Generator configuration

1 In the **Administrator user credentials for native PDF conversions** screen box, enter the user name and password of a user with administrative privileges on the server machine. Click **Add user.**

Add at least one administrative user for Windows 2008 Server and Click **Next**.

Note: *On Windows 2008 Server, disable User Account Control (UAC) for the users you add. To disable UAC, click* ***Control Panel > User Accounts > Turn User Account Control on or off*** *and deselect* ***Use User Account Control (UAC) to help protect your computer****. Click* ***OK****. Your changes become effective when the system is restarted.*

Important: *Ensure that you disable UAC for the users you add. See "3.3.2 Disable the Windows UAC on Vista and Windows Server 2008 R1" on page 6 or "3.3.3 Disable the Windows UAC on Windows 7 and Windows Server 2008 R2" on page 7, as applicable.*

2 In the LiveCycle PDFGenerator System Readiness Test dialog box, click Start to validate if the system has been appropriately configured for PDF Generator.

3 Review the System Readiness Tool Report and click **Next**.

5.5.2.15.7 Configure Reader Extensions Credential

❖ (**Reader Extensions only**) In the **Reader Extensions Credential Configuration** dialog box, choose one of these options:

- Browse to the location of your Reader Extensions Rights credential file, type your credential password as provided by Adobe, type the name for the configured credential that will be displayed in the Reader Extensions application, click **Configure**, and then click **Next**.
- To skip this step, select **Configure Later Using Administration Console** and click **Next**. You can configure the Rights credential from Administration Console (**Settings** > **Trust Store Management** > **Local Credentials**).

5.5.2.16 Task summary

Review the Configuration Manager task summary list and select **Next Steps** to launch an html page containing information about LiveCycle user and administrative interfaces. Click Finish.

5.6 Next steps

If you reconfigured SSL or you are running Configuration Manager on a server where you have already configured LiveCycle you must restart JBoss for the SSL configuration to take effect.

If you used Configuration Manager to configure and deploy LiveCycle, you can now complete the post-deployment tasks. (See "Post-Deployment Activities" on page 41.)

Chapter 6: Post-Deployment Activities

Perform the post-deployment tasks to get started using LiveCycle modules and services after they are installed, configured, and deployed to your application server.

6.1 Change default password

LiveCycle creates one or more default users during the installation. The password for these users is in the product documentation and is publicly available. You must change this default password, depending on your security requirements.

The LiveCycle administrator user password is set to "password" by default. You must change it in Administration Console > Settings > User Management. See "6.6 Accessing Administration Console" on page 44 for instructions about logging in to Administration Console.

6.2 Restarting the JBoss services

After completing the LiveCycle installation, restart the JBoss service to ensure that it is in a clean running state. After an install, the JBoss service will be in a high-memory-use initialization state.

Note: *When you upgrade the LiveCycle Server or deploy a Service pack, ensure that you delete the [Jboss_root]\server\<server name>\work and [Jboss_root]\server\<server name>\tmp folders before restarting the application server.*

6.3 Disabling status pages for JBoss

Due to a possible information disclosure issue, remove access to the JBoss status page by following these steps for your version of the application server.

1 **(JBoss 5.1 only)** Locate *[JBoss root]*/server/lc_turnkey/deploy/ROOT.war/WEB-INF, and open the web.xml file in an editor.

2 Comment out the `servlet` and `servlet-mapping` tags as follows:

```
<!-- <servlet>
    <servlet-name>Status Servlet</servlet-name>
    <servlet-class>org.jboss.web.tomcat.service.StatusServlet
    </servlet-class>
</servlet>
<servlet-mapping>
    <servlet-name>Status Servlet</servlet-name>
    <url-pattern>/status</url-pattern>
</servlet-mapping> -->
```

3 Save and close the file.

6.4 Setting the correct date, time, and time zone

Setting the correct date, time, and time zone on all servers connected to your LiveCycle environment will ensure that time-dependent modules, such as Adobe® LiveCycle® Digital Signatures 11 and Reader Extensions, will function correctly. For example, if a signature appears to have been created in the future, it will not validate.

Servers that require synchronization are database servers, LDAP servers, HTTP servers, and J2EE servers.

6.5 Manually enabling SSL for JBoss

During Turnkey installation, the JBoss application server is set up with Secure Sockets Layer (SSL) disabled by default. Enable SSL for JBoss if you want to use Adobe® LiveCycle® Rights Management 11 with Adobe Acrobat for securing documents. Enabling SSL requires a signed certificate issued by a trusted certificate authority (CA) like VeriSign. However, you can also generate and use a self-signed certificate to enable SSL.

The following broad tasks are involved in enabling SSL for JBoss on a Turnkey installation:

1. Create a keystore using the keytool utility that ships with the Java SDK.
2. Generate the certificate or use a certificate issued by a CA.
3. Copy the keystore and the certificate files to the JBoss root configuration folder—*[JBoss root]*\server\lc_turnkey\conf.
4. Import the certificate into *[Adobe_JAVA_HOME]*\lib\security\cacerts.
5. Update the JBoss server.xml file to uncomment the SSL configuration settings and specify reference attributes for the certificate.
6. Restart the JBoss server to apply your changes.

6.5.1 Enable SSL for JBoss

You can configure SSL for JBoss using Configuration Manager. If you skipped this option, manually configure SSL using the instructions given below:

X.500 distinguished names are used as identifiers when you generate a keystore and a certificate. The keytool command that you use to generate a certificate supports the following subparts for the `–dname` option:

CN: The complete hostname of the machine for which you're creating the certificate. For example, "machine.adobe.com".

OU: The name of a small organizational unit, such as a department or a division. For example, "Purchase".

O: The name of the organization. For example, "Adobe Systems".

L: The name of a locality or city. For example, "San Jose".

S: The name of a state or province. For example, "California".

C: A two letter country code. For example, "US".

6.5.1.1 Enable SSL for JBoss on a Turnkey installation

1 Navigate to *[Adobe_JAVA_HOME]/*bin and type the following command to create the keystore:

`keytool -genkey -dname "CN=`**Host Name**`, OU=`**Group Name**`, O=`**Company Name**`, L=`**City Name**`, S=`**State**`, C=`**Country Code**`" -alias "LC Cert" –keyalg rsa -keypass` **key_password** `-keystore` **keystorename.**`keystore`

Replace *[Adobe_JAVA_HOME]* with the name of the directory where the JDK is installed, and replace the text in bold with values that correspond to your environment. The Host Name is the fully qualified domain name of the application server.

2 Enter the *keystore_password* when prompted for a password.

Note: *The keystore_password entered at this step may be the same password (key_password) that you entered in step 1, or may be different.*

3 Copy the *keystorename.*keystore file to the *[JBoss root]*\server\lc_turnkey\conf directory by typing the following command:

```
copy keystorename.keystore [JBoss root]/server/lc_turnkey/conf
```

4 Export the certificate file by typing the following command:

```
keytool -export -alias "LC Cert" -file LC_cert.cer -keystore [JBoss
root]\server\lc_turnkey\conf\keystorename.keystore
```

5 Enter the *keystore_password* when prompted for a password.

6 Copy the LC_cert.cer file to the *[JBoss root] conf directory* by typing the following command:

```
copy LC_cert.cer [JBoss root]\server\lc_turnkey\conf
```

7 View the contents of the certificate by typing the following command:

```
keytool -printcert -v -file [JBoss root]\server\lc_turnkey\conf\LC_cert.cer
```

8 If necessary, provide write access to the `cacerts` file in *[Adobe_JAVA_HOME]\lib\security.* Right-click the `cacerts` file, select Properties, and then deselect the Read-only attribute.

9 Import the certificate by typing the following command:

```
keytool -import -alias "LC Cert" -file LC_cert.cer -keystore
[Adobe_JAVA_HOME]\jre\lib\security\cacerts
```

10 Type `changeit` as the password. `changeit` is the default password for a Java installation.

11 When prompted if you `Trust this certificate? [no]:`, type `yes`. The confirmation "Certificate was added to keystore" is displayed.

12 In a text editor, open the file

(JBoss 5.1 only) *`[JBoss root]\server\lc_turnkey\deploy\jbossweb.sar\server.xml`.*

13 Uncomment the following lines in the *server.xml* file:

```
<!-- SSL/TLS Connector configuration using the admin devl guide keystore <Connector
port="8443" address="${jboss.bind.address}" maxThreads="100" strategy="ms"
maxHttpHeaderSize="8192" emptySessionPath="true" scheme="https" secure="true"
clientAuth="false" keystoreFile="${jboss.server.home.dir}/conf/keystoreFile.keystore"
keystorePass="keystorePass" sslProtocol = "TLS" />

-->
```

14 For the *keystoreFile* attribute in *server.xml*, specify the path of the keystore file you created. Specify *keystore_password* for the *keystorePass* attribute in *server.xml*.

15 Save the *server.xml* file.

16 Restart the application server:

- From the **Windows Control Panel**, click **Administrative Tools**, and then click **Services**.
- Select **JBoss for Adobe LiveCycle ES4.**
- Select **Action > Stop.**
- Wait for the status of the service to appear as stopped.
- Select **Action > Start.**

6.6 Accessing Administration Console

Administration Console is the web-based portal for accessing various configuration pages, where you set run-time properties that control the way LiveCycle operates. When you log in to Administration Console, you can access User Management, watched folder, and email client configuration, as well as administrative configuration options for other services. Administration Console also provides access to Applications and Services, which administrators use for managing archives and deploying services to a production environment.

The default user name and password for logging in to Administration Console is *administrator* and *password*. After you log in the first time, you can access User Management and change the password of the LiveCycle administrator account. (See "6.7.7 Accessing User Management" on page 46.)

Before you access Administration Console, LiveCycle must be deployed and running on your application server.

For information about using the administration web pages, see *Administration Console Help* (available from the Help menu of the Administration Console home page).

1 Open a web browser and enter this URL:

http://localhost:8080/adminui (local deployment using the default port)

2 Log in using the default user name and password:

User name: *administrator*

Password: *password*

3 Click **Log in**.

4 Click **Services** to access the services' pages, and click **Settings** to access the Core System Settings, User Management, and Trust Store Management pages.

6.7 Accessing LiveCycle applications

After LiveCycle is deployed, you can access the web applications that are associated with the following modules:

- Adobe® LiveCycle® Reader Extensions 11
- Adobe® LiveCycle® Workspace 11

Note: *The Flex Worksapce is deprecated for AEM forms. It is available for the LiveCycle ES4 release.*

- Adobe® LiveCycle® PDF Generator 11
- Adobe® LiveCycle® Rights Management 11

After accessing the web applications by using the default administrator permissions to ensure that they are accessible, you can create additional users and roles so that others can log in and use the applications. (See Administration Help.)

6.7.1 Access the Reader Extensions web application

Note: *You must apply a Reader Extensions credential and apply the user roles for a new user. (See "Configuring credentials for use with Reader Extensions" in LiveCycle Administration Help.)*

1 Open a web browser and enter this URL:

```
http://localhost:8080/ReaderExtensions
```

2 Log in using the user name and password for LiveCycle.

Note: *You must have administrator or superuser privileges to log in. To allow other users to access the Reader Extensions web application, you must create the users in User Management and grant them the Reader Extensions Web Application role.*

6.7.2 Access Workspace

1 Open a web browser and enter this URL:

```
http://localhost:8080/workspace
```

2 Log in using the user name and password for LiveCycle.

Note: *The Flex Worksapce is deprecated for AEM forms. It is available for the LiveCycle ES4 release.*

6.7.3 Access HTML Workspace

1 Open a web browser and enter this URL:

```
http://localhost:8080/lc/ws
```

2 Log in using the user name and password for LiveCycle.

6.7.4 Access Forms Manager

1 Open a web browser and enter this URL:

```
http://localhost:8080/lc/fm
```

2 Log in using the user name and password for LiveCycle.

6.7.5 Access PDF Generator Web Application

1 Open a web browser and enter this URL:

```
http://localhost:8080/pdfgui
```

2 Log in using the user name and password for LiveCycle.

6.7.6 Access Rights Management

You must create a user with the Rights Management End User role in User Management and log in to the Rights Management administrator or end-user applications by using the login information that is associated with that user.

Note: *The default administrator user cannot access the Rights Management end-user web application but you can add the appropriate role to its profile. You can create a new user or modify an existing user through Administration Console.*

Access the Rights Management end-user web application

❖ Open a web browser and enter this URL:

```
http://localhost:8080/edc
```

Access the Rights Management administration web application

1 Open a web browser and enter this URL:

```
http://localhost:8080/adminui
```

2 Click **Services** > **LiveCycle Rights Management 11**.

For information about setting up users and roles, see Administration Help.

Assign the Rights Management End User role

1 Log in to Administration Console.

2 Click **Settings** > **User Management** > **Users and Groups**.

3 In the **Find** box, type `all` and, in the **In** list, select **Groups**.

4 Click **Find** and, for the required domains, click **All Principals** in the list that appears.

5 Click the **Role Assignments** tab and click **Find Roles**.

6 In the list of roles, select the check box next to **Rights Management End User**.

7 Click **OK** and then click **Save**.

6.7.7 Accessing User Management

By using User Management, administrators can maintain a database of all users and groups, synchronized with one or more third-party user directories. User Management provides authentication, authorization, and user management for LiveCycle modules, including Reader Extensions, Workspace, Rights Management, Adobe® LiveCycle® Process Management 11, Adobe® LiveCycle® Forms Standard 11 and PDF Generator.

1 Log in to Administration Console.

2 On the home page, click **Settings** > **User Management**.

Note: *For information about configuring users with User Management, click* ***User Management Help*** *in the upper-right corner of the User Management page.*

Note: *The Flex Worksapce is deprecated for AEM forms. It is available for the LiveCycle ES4 release.*

6.7.8 Access Correspondence Management Solution template

You can verify the Correspondence Management Solution deployment by visiting `http://localhost:8080/lc/cm` and logging in using LiveCycle administrator credentials. Solution template is a reference implementation of Correspondence Management Solution.

Note: *In a non-turnkey deployment, if you encounter an error while accessing the solution template, you must integrate LiveCycle with Correspondence Management Solution. For more information, see the* ***Configure Publish nodes to Integrate with LiveCycle*** *section of this document.*

6.8 Encrypting the plaintext password

To learn how to encrypt the plaintext password in the data source configuration, go to: http://wiki.jboss.org and search for *EncryptingDataSourcePasswords*.

6.9 Managing the MySQL database

The turnkey installation and configuration supports the transaction-safe storage engine (InnoDB) in MySQL. This means that all LiveCycle must operate in the same storage engine and have consistent version support. (See MySQL InnoDB Storage Engine.)

6.10 Configuring LiveCycle to access LDAP

If you did not previously configure Lightweight Directory Access Protocol (LDAP), you can use the following procedure as a guideline when configuring User Management to support authentication using LDAP.

Note: *Skip these steps if you configured LDAP for previous LiveCycle products. LDAP configurations are migrated during the upgrade process.*

1. Open a web browser, navigate to http://*localhost*:8080/adminui, and log in. (See "6.7 Accessing LiveCycle applications" on page 44.)
2. Click **Settings** > **User Management** > **Domain Management**, and click **New Enterprise Domain**.
3. In the **ID** box, type a unique identifier for the domain.
4. In the **Name** box, type a descriptive name for the domain.
5. Click **Add Authentication** and, in the **Authentication Provider** list, select **LDAP**.
6. Click **OK** and, on the page that appears, click **Add Directory**.
7. In the **Profile Name** box, type a name, and then click **Next**.
8. Specify values in the **Server**, **Port**, **SSL**, and **Binding** boxes, as required.
9. Under **Populate Page With**, select a directory settings option (for example, select **Default Sun ONE values**), and then click **Next.**
10. Configure **User Settings** as required, and then click **Next.**
11. Configure **Group Settings** as required, and then click either **Test** or **Finish**.
12. (Optional) Test your configuration:
    - Click **Test**.
    - In the Test Directory pane, in the **Find** box, enter an object name and, in the **using** box, select the object's type, such as **Login ID**.
    - Click **Test**. If successful, your object's details are displayed. You can then click **Back**.

13 Click **Finish** to exit the Add Directory page, and then click **OK** again.

6.11 Configure Correspondence Management Solution

Perform the following tasks to configure Correspondence Management Solution.

6.11.1 Configure the Author instance

The Author instance is embedded within the LiveCycle server. This implies that you do not need to make any configuration updates to the Author instance. The instance inherits all the configuration settings from the LiveCycle instance.

6.11.2 Configure the Publish instance

You must run separate author and publish instances for Correspondence Management Solution. However, you can configure the two instances on the same or on different machines.

Note: *Before configuring the publish instance, ensure that your author instance is configured and deployed. You can verify by successfully logging in to the solution template for Correspondence management Solution. See "6.7.8 Access Correspondence Management Solution template" on page 46for more information.*

1. Create a new appserver profile for the publish instance on the same or on a different machine.
2. On the author instance, navigate to the [*LiveCycle root*]/configurationManager/export/ directory.
3. Copy the adobe-livecycle-cq-publish.ear file and deploy it to the appserver profile created in step 1.
4. Copy the [*LiveCycle root*]/configurationManager/export/crx-repository directory to the file server for the publish instance.
5. Start the publish server with `-Dcom.adobe.livecycle.crx.home=<location for crx-repository>` parameter, where `<location for crx-repository>` is the location where you copied the crx-repository directory for the publish instance.

Note: *If author and publish instances are on the same machine, ensure that you start the publish instance using a different port.*

Now that the publish instance is up and running, you need to configure the two instances to communicate with each other.

Important: *If you are setting up clustering on your Correspondence Management solution, you need to ensure that there are no spaces in your CRX repository path.*

6.11.3 Communicating between the Author and Publish instances

You need to perform certain configuration changes to enable two-way communication between the Author and Publish instances.

6.11.3.1 Define Publish instance URL

1. Go to http://<*authorHost*>:<*authorPort*>/lc/etc/replication/agents.author/publish.html.
2. Click **Edit**. The Agent Settings dialog opens.
3. Click the **Transport** tab and specify the URL to the publish server in the URI field.

   http://<*publishHost*>:<*publishPort*>/lc/bin/receive?sling:authRequestLogin=1

Note: *If there are multiple publish instances managed by a Load Balancer, specify the URL to the load balancer in the URI field.*

4 Click **OK**.

Note: *For author clusters, these steps need to be performed on one author instance (preferably a master instance).*

6.11.3.2 Define publish instance URL for ActivationManagerImpl

1 Go to http://<*authorHost*>:<*authorPort*>/lc/system/console/configMgr.

2 Find and click the Edit icon next to the `com.adobe.livecycle.content.activate.impl.ActivationManagerImpl.name` setting.

3 In the ActivationManager Publish URL field, specify the URL for the corresponding publish instance.

4 Click **Save**.

6.11.3.3 Configure reverse replication queue

1 Go to http://<*authorHost*>:<*authorPort*>/lc/etc/replication/agents.author/publish_reverse.html.

2 Click **Edit**. The Agent Settings dialog opens.

3 Click the **Transport** tab and specify the URL to the corresponding publish server in the URI field.

Note: *If there are multiple publish instances managed by a Load Balancer, specify the URL to the load balancer in the URI field.*

4 Click **OK**.

6.11.3.4 Define author instance URL

1 Go to http://<*publishHost*>:<*publishPort*>/lc/system/console/configMgr.

2 Find and click the Edit icon next to the `com.adobe.livecycle.content.activate.impl.VersionRestoreManagerImpl.name` setting.

3 In the VersionRestoreManager Author URL field, specify the URL for the corresponding author instance.

Note: *If there are multiple author instances managed by a Load Balancer, specify the URL to the load balancer in the VersionRestoreManager Author URL field.*

4 Click **Save**.

6.11.4 Install sample users and assets

You can install sample users with predefined user permissions to further explore the solution template, which you can customize to build your own solution.

1 Go to http://<*authorHost*>:<*authorPort*>/lc/crx/explorer/index.jsp.

2 Log in using LiveCycle administrator credentials and click **Package Manager**.

3 In **Package Manager**, upload the samples-correspondencemanagement-pkg-<*version*>.zip package from <*LC_HOME*>/deploy/crx.

4 Click **Install** once the package uploads successfully.

5 Click **Install** on the confirmation dialog to install the sample users and assets.

For more information about the sample users and guidelines to implement a solution using the solution template, see Correspondence Management Solution Guide.

Note: *For author clusters, these steps need to be performed on one author instance (preferably a master instance).*

6.11.5 Configure IPv6 implementation

Note: *Perform these steps only if Correspondence Management Solution is running on a machine that uses an IPv6 address.*

To map the IPv6 address to a hostname on the server and client machines:

1 Navigate to the C:\Windows\System32\drivers\etc directory.

2 Open the `hosts` file in a text editor.

3 Add a mapping for the IPv6 address to a host name. For example:

```
2001:1890:110b:712b:d1d:9c99:37ef:7281 <ipv6_hostname>
```

4 Save and close the file.

Ensure that you use the mapped host name instead of the IPv6 address to access Correspondence Management Solution.

6.11.6 Install Japanese fonts for Adobe Reader

If your Correspondence Management assets use Japanese fonts, you must install the Japanese Language Support Package for Adobe Reader. Otherwise, your letters and forms will not render and function properly. For installing language packs, visit the downloads page for Adobe Reader.

6.12 Configuring the HTML digital signature feature

To use the HTML digital signature feature of Forms, complete the following procedure.

1 Manually deploy the *[LiveCycle root]*/deploy/adobe-forms-ds.ear file to your application server.

2 Log in to Administration Console and click **Services** > **Forms**.

3 Select **HTML Digital Signature Enabled** and then click **Save**.

6.13 Configuring PDF Generator

If you installed PDF Generator as part of your LiveCycle solution, complete the following tasks:

- "6.13.1 Setting environment variables" on page 51
- "6.13.2 Configuring the application server to use an HTTP proxy server" on page 51
- "6.13.3 Setting the Adobe PDF Printer as the default printer" on page 52
- "6.13.4 Configuring Acrobat" on page 52
- "6.13.5 Installing East Asian characters in Windows Server 2003" on page 53
- "6.13.6 PDF Generator watched folder performance parameters" on page 53
- "6.13.7 User accounts for multi-threaded file conversions" on page 53
- "6.13.8 Adding fonts to PDF Generator" on page 54

- "6.13.9 Configuring HTML to PDF conversions" on page 55
- "6.13.10 Modifying Microsoft Visio 2007 default macro settings" on page 56
- "6.13.11 Installing the PDF Generator Network Printer client" on page 56

6.13.1 Setting environment variables

If you installed PDF Generator and configured it to convert files to PDF, for some file formats, you must manually set an environment variable that contains the absolute path of the executable that is used to start the corresponding application. This table lists the native applications for which PDF Generator requires you to set up environment variables.

Application	Environment variable	Example
Adobe Acrobat XI	`Acrobat_PATH`	`C:\Program Files (x86)Adobe\Acrobat 11.0\Acrobat\Acrobat.exe`
Adobe FrameMaker®	`FrameMaker_PATH`	`C:\Program Files\Adobe\FrameMaker8.0\FrameMaker.exe`
Notepad	`Notepad_PATH`	`C:\WINDOWS\Notepad.exe`
OpenOffice.org	`OpenOffice_PATH`	`C:\Program Files\OpenOffice.org 3.3`
Adobe PageMaker®	`PageMaker_PATH`	`C:\Program Files\Adobe\PageMaker 7.0\PageMaker.exe`
WordPerfect	`WordPerfect_PATH`	`C:\Program Files\WordPerfect Office 12\Programs\wpwin12.exe`

Note: *The `OpenOffice_PATH` environment variable is set to the installation folder instead of the path to the executable.*

You do not need to set up the paths for Microsoft Office applications such as Word, PowerPoint, Excel, Visio, and Project, or for AutoCAD. The Generate PDF service starts these applications automatically if they are installed on the server.

6.13.2 Configuring the application server to use an HTTP proxy server

If the computer that LiveCycle is running on uses proxy settings to access external websites, the application server should be started with the following values set as Java Virtual Machine (JVM™) arguments:

```
-Dhttp.proxyHost=[server host]
-Dhttp.proxyPort=[server port]
```

Follow the procedure listed below to start your application server with HTTP proxy host settings.

6.13.2.1 Add the setting to JBoss

1. Ensure that the JBoss Application Server is stopped.
2. From command line, edit the run.conf.bat or run.bat script in the *[JBoss root]*/bin/ directory.
3. Add the following text to the script file:

```
Set JAVA_OPTS=%JAVA_OPTS%
-Dhttp.proxyHost=[server host]
-Dhttp.proxyPort=[server port]
```

4. Save and close the file.

6.13.3 Setting the Adobe PDF Printer as the default printer

Set the Adobe PDF Printer to be the default printer on the server. If the Adobe PDF Printer is not set as the default, PDF Generator cannot convert files successfully.

1 Select **Start** > **Printers and Faxes**.

2 In the Printers and Faxes window, right-click **Adobe PDF** and select **Set as Default Printer**.

6.13.4 Configuring Acrobat

This procedure can be completed after you run Configuration Manager and deploy LiveCycle to the application server.

1 If an earlier version (10.0 or earlier) of Acrobat is installed, uninstall it by using Add or Remove Programs in the Windows Control Panel.

2 Do one of the following:

- If you are using the media, insert the Acrobat Pro CD.
- If you are using the ESD downloads, download Acrobat from your ESD location.

3 Install Acrobat XI Pro by running the AutoPlay.exe file.

4 Navigate to the additional\scripts folder on the LiveCycle installation media.

5 Run the following batch file:

```
Acrobat_for_PDFG_Configuration.bat [LiveCycle root]/pdfg_config
```

6 Open Acrobat and select **Help** > **Check for updates** > **Preferences**.

7 Deselect **Automatically check for Adobe updates**.

6.13.4.1 Validate the Acrobat installation

1 Navigate to a PDF file on your system and double-click it to open it in Acrobat. If the PDF file opens successfully, Acrobat is installed correctly.

2 If the PDF file does not open correctly, uninstall Acrobat and reinstall it.

Note: *Ensure that you dismiss all the Acrobat dialog boxes that are displayed after the Acrobat installation is completed and disable the automatic updates for Acrobat.*

Set the `Acrobat_PATH` environment variable to point to Acrobat.exe (such as C:\Program Files\Adobe\Acrobat 11.0\Acrobat\Acrobat.exe).

6.13.4.2 Configure native application support

1 Install and validate Acrobat as described in the previous procedure.

2 Set Adobe PDF printer as the default printer.

6.13.4.3 Changing File Block Settings

Change Microsoft Office trust center settings to enable PDFG to convert older versions of Microsoft office documents.

1 Click the **File tab** in any Office 2010 application. Under **Help**, click **Options**; the Options dialog box appears

2 Click **Trust Center**, and then click **Trust Center Settings**.

3 In the **Trust Center settings**, click **File Block Settings**.

4 In the File Type list, uncheck open for the file type that you want to be converted by PDFG.

6.13.4.4 Network Printer Client installation

PDF Generator includes the Network Printer Client installer for installation of the PDF Generator Internet printer. After the installation is completed, a PDF Generator printer is added to the list of existing printers on the clients computer. This printer can then be used to send documents for conversion to PDF. For more information about installing the Network Printer Client, see Installing and Deploying LiveCycle document for your application server.

6.13.5 Installing East Asian characters in Windows Server 2003

When HTML files are converted to PDF by using PDF Generator, some East Asian languages, such as Japanese, Korean, and Chinese, and also right-to-left languages, such as Arabic, Armenian, Georgian, Hebrew, Indic, Thai, and Vietnamese, may not be displayed in the PDF file.

To ensure that these languages are displayed in Windows Server 2003, appropriate fonts must be present on the client and server.

1 Select **Start** > **Control Panel** and open **Regional and Language Options**.

2 Click the **Languages** tab and select **Install Files for East Asian Languages**.

3 Click the **Advanced** tab and select all the options under Code Page Conversion Tables.

If converted PDF files are still missing fonts, verify that the Arial Unicode MS (TrueType) font (ARIALUNI.TTF) is present in the C:\WINDOWS\Fonts directory.

6.13.6 PDF Generator watched folder performance parameters

To avoid `java.io.IOException` error messages indicating that not enough disk space is available to perform PDF conversions using a watched folder, you can modify the settings for PDF Generator in Administration Console.

1 Log in to Administration Console and click **Services** > **Application and Services** > **Service Management**, and click **PDFGConfigService** in the list of services.

2 On the Configure PDFGConfigService page, set the following values:

PDFG Cleanup Scan Seconds: 1800

Job Expiration Seconds: 6000

Server Conversion Timeout: 450

6.13.7 User accounts for multi-threaded file conversions

By default, PDF Generator can convert only one OpenOffice, Microsoft Word, or PowerPoint document at a time. If you enable multi-threaded conversions, PDF Generator can convert more than one of the documents concurrently by launching multiple instances of OpenOffice or PDFMaker (which is used to perform the Word and PowerPoint conversions).

Note: *Only Microsoft Word 2007 and Microsoft PowerPoint 2007 are supported with multi-threaded file conversions. Microsoft Excel 2003 or 2007 versions are not supported.*

If you need to enable multi-threaded file conversion, you must first perform the tasks outlined in the "*3.3.5.3 Enabling multi-threaded file conversions and multiuser support for PDF Generator*" on page 8 section.

1 In Configuration Manager, click **Services > PDF Generator > User Accounts.**

2 Click **Add** and enter the user name and password of a user who has administrative privileges on the LiveCycle server. If you are configuring users for OpenOffice, dismiss the initial OpenOffice activation dialogs.

Note: *If you are configuring users for OpenOffice, the number of instances of OpenOffice cannot be greater than number of user accounts specified in this step.*

3 Restart the LiveCycle server.

6.13.8 Adding fonts to PDF Generator

LiveCycle provides a central repository of fonts which is accessible to all LiveCycle modules. Make the extra fonts available to non-LiveCycle applications on the server so that PDF Generator can use these fonts to create PDF documents that are created with these applications.

6.13.8.1 Non-LiveCycle applications

The following list contains non-LiveCycle applications that PDF Generator can use for PDF generation on the server side:

Windows-only Applications

- Microsoft Office Word
- Microsoft Office Excel
- Microsoft Office PowerPoint
- Microsoft Office Project
- Microsoft Office Visio
- Microsoft Office Publisher
- AutoDesk AutoCAD
- Corel WordPerfect
- Adobe Photoshop CS
- Adobe FrameMaker
- Adobe PageMaker
- Adobe Acrobat Pro

Multiplatform applications

- OpenOffice Writer
- OpenOffice Calc
- OpenOffice Draw
- OpenOffice Impress

Note: *In addition to these applications, your list may include additional applications that you added.*

Of the above applications, the OpenOffice Suite (which includes Writer, Calc, Draw, and Impress) is available on Windows, Solaris™, and Linux® platforms, whereas other applications are available on Windows only.

6.13.8.2 Adding new fonts to Windows applications only

All the Windows-only applications that are mentioned above can access all the fonts that are available in the C:\Windows\Fonts (or equivalent) folder. In addition to C:\Windows\Fonts, each of these applications may have its own private fonts folders.

Therefore, if you plan to add any custom fonts to the LiveCycle fonts repository, ensure that the same fonts are available to the Windows-only applications also by copying these fonts to either C:\Windows\Fonts or to an equivalent folder.

Your custom fonts must be licensed under an agreement that allows you to use them with the applications that have access to these fonts.

6.13.8.3 Adding new fonts to OpenOffice Suite

Adding custom fonts to OpenOffice Suite is explained on the OpenOffice *Fonts-FAQ* page at http://wiki.services.openoffice.org.

In addition, OpenOffice Suite has these resources about the fonts-related behavior:

- *OpenOffice Fonts Troubleshooting Guide* at http://www.openoffice.org/FAQs/fontguide.html. Some of the text in this guide is applicable only to OpenOffice 1.x and therefore may be obsolete for OpenOffice 3.1 and above.
- *Importing Fonts into OpenOffice 2.1* at http://openoffice.blogs.com/openoffice/2007/02/font_import_wiz.html. Even though this blog mentions OpenOffice 2.1, the instructions that are mentioned should be applicable to OpenOffice 3.1 and later

6.13.8.4 Adding new fonts to other applications

If you added support for PDF creation in other applications, see the Help for these applications to add new fonts. In Windows, copying your custom fonts to the C:\Windows\Fonts (or equivalent) folder should be sufficient.

6.13.9 Configuring HTML to PDF conversions

The HTML-to-PDF conversion process is designed to use the settings from Acrobat XI that override the settings from PDF Generator.

Note: *This configuration is required to enable the HTML-to-PDF conversion process, otherwise this conversion type will fail.*

1 Install and validate Acrobat as described in "6.13.4 Configuring Acrobat" on page 52.

2 Locate the pdfgen.api file in the *[LiveCycle root]*\plugins\x86_win32 directory and copy it to *[Acrobat root]*\Acrobat\plug_ins directory.

6.13.9.1 Enabling support for Unicode fonts in HTML to PDF conversions

Important: *The HTML-to-PDF conversion fails if a zipped input file contains HTML files with double-byte characters in filenames. To avoid this problem, do not use double-byte characters when naming HTML files.*

1 Copy the Unicode font to any of the following directories as appropriate for your system:

   - *[Windows root]*\Windows\fonts
   - *[Windows root]*\WINNT\fonts

2 Modify the font-name mapping in the cffont.properties file located in the *[LiveCycle root]*/adobe-generatepdf-dsc.jar file:

   - Extract this archive, and locate the cffont.properties file and open it in an editor.
   - In the comma-separated list of Java font names, add a map to your Unicode system font for each font type. In the example below, kochi mincho is the name of your Unicode system font.

     ```
     dialog=Arial, Helvetica, kochi mincho

     dialog.bold=Arial Bold, Helvetica-Bold, kochi mincho ...
     ```

- Save and close the properties file, and then repackage and redeploy the adobe-generatepdf-dsc.jar file.

Note: *On a Japanese operating system, specify the font mapping in the cffont.properties.ja file as well, which takes precedence over the standard cffont.properties file.*

Fonts in the list are searched from left to right, using the first font found. HTML-to-PDF conversion logs return a list of all the font names that are found in the system. To determine the font name you need to map, add the font to one of the directories above, restart the server, and run a conversion. You can determine from the log files the font name to use for mapping.

To embed the font in the generated PDF files, set the `embedFonts` property in the cffont.properties file to `true` (the default is `false`).

6.13.10 Modifying Microsoft Visio 2007 default macro settings

When a Microsoft Visio 2007 file containing macros is submitted for conversion, the resultant Microsoft Office Visio Security Notice dialog causes the conversion to time out. To successfully convert files that contain macros, the default macro settings in Visio must be changed.

- In Visio 2007, click **Tools** > **Trust Center** > **Macro Settings** and select either of the following options and then click **OK**:
  - Disable all macros without notification
  - Enable all macros

6.13.11 Installing the PDF Generator Network Printer client

PDF Generator includes an executable file to install the PDF Generator network printer on a client computer. After the installation is complete, a PDF Generator printer is added to the list of existing printers on the client computer. This printer can then be used to send documents for conversion to PDF.

Note: *The Network Printer Client installation wizard available in the Administration Console is supported only on Windows operating system. Ensure that you use a 32-bit JVM to launch the Network Printer Client installation wizard. You will encounter an error if you use a 64-bit JVM.*

If the PDFG Network Printer fails to install on Windows, use the operating system's native Add Printer utility and configure it as described in "6.13.11.2 Configure PDF Generator Network Printer on Windows using the native Add Printer wizard" on page 57.

6.13.11.1 Install the PDF Generator Network Printer Client

Note: *Before installing the PDF Generator network printer client on Windows Server 2008, Ensure that you have the Internet Printing Client feature installed on your Windows Server 2008. For installing the feature, see Windows Server 2008 Help.*

1 Ensure that you successfully installed PDF Generator on your server.

2 Do one of the following:

- From a Windows client computer, enter the following URL in your web browser, where *[host]* is the name of the server where you installed PDF Generator and *[port]* is the application server port used:

  `http://[host]:[port]/pdfg-ipp/install`

- In Administration Console, click **Home > Services > PDF Generator Evaluation > PDFG Network Printer**. In the **PDFG Network Printer Installation** section, click **Click here** to launch the PDFG Network Printer Installation.

3 On the Configure Internet Port screen, select **Use the specified user account** and provide the credentials of a LiveCycle user who has the PDFG Administrator/User role. This user must also have an email address that can be used to receive the converted files. To have this security setting applied to all users on the client computer, select **Use the same security options for all users**, and then click **OK**.

Note: *If the users' password changes, then users will need to reinstall the PDFG Network Printer on their computers. You cannot update the password from Administration Console.*

Upon successful installation, a dialog box appears, indicating that "The Printer LiveCycle PDF Generator has been successfully installed."

4 Click **OK**. You will now have a printer named *LiveCycle PDF Generator* in your list of available printers.

6.13.11.2 Configure PDF Generator Network Printer on Windows using the native Add Printer wizard

1 Click **Start** > **Printers and Faxes** and double-click **Add Printer**.

2 Click **Next**, select **A network printer, or a printer attached to another computer**, and then click **Next**.

3 Select **Connect to a printer on the internet or on a home or office network** and type the following URL for the PDFG printer, where *[host]* is the server name and *[port]* is the port number where the server is running:

`http://[host]:[port]/pdfg-ipp/printer`

4 On the Configure Internet Port screen, select **Use the specified user account** and provide valid User Management credentials.

5 In the **Printer Driver Select** box, choose any standard PostScript-based printer driver (for example, HP Color LaserJet PS).

6 Complete the installation by choosing appropriate options (for example, setting this printer as default).

Note: *The user credentials used while adding the printer must have a valid email ID configured in User Management to receive the response.*

❖ Configure the email service's sendmail service. Provide a valid SMTP server and authentication information in the service's configuration options.

6.13.11.3 Install and configure the PDF Generator Network Printer Client using Proxy server port forwarding

1 Configure port forwarding on the CC Proxy server on a particular port to the LiveCycle server, and disable the authentication at proxy server level (since LiveCycle uses its own authentication). If a client connects to this Proxy server on the forwarded port, then all the requests will be forwarded to the LiveCycle server.

2 Install PDFG Network Printer using the following URL:

`http://[proxy server]:[forwarded port]/pdfg-ipp/install.`

3 Provide the necessary credentials for authentication of the PDFG Network Printer.

4 The PDFG Network Printer will be installed on the client machine which you can use for PDF conversion using the firewall protected LiveCycle server.

6.13.12 Enable PDF Conversion for Microsoft Word document containing protected fields

The PDF Generator supports Microsoft Word documents containing protected fields. To enable PDF Conversion for Microsoft Word document containing protected fields, change the file type settings:

1 In the **Administration Console**, navigate to **Services** > **PDF Generator** > **File Type Settings**, and open your file type settings profile.

2 Expand the **Microsoft Word** option and select the **Preserve document markup in Adobe PDF (for Microsoft Office 2003 or later)** option.

3 Click **Save As**, specify name of the file type setting, and click **OK**.

6.14 Configuring Connector for EMC Documentum

Note: *LiveCycle supports EMC Documentum, versions 6.0, 6.5, 6.7 SP1, and 7.0 and minor updates only. Make sure your ECM is upgraded accordingly.*

If you installed Connector for EMC Documentum as part of your LiveCycle solution, complete the following procedure to configure the service to connect to the Documentum repository.

Configure Connector for EMC Documentum

1 Locate the adobe-component-ext.properties file in the *[JBoss root]*/bin folder (if the file does not exist, create it).

2 Add a new system property that provides the following Documentum Foundation Classes JAR files:

- dfc.jar
- aspectjrt.jar
- log4j.jar
- jaxb-api.jar
- (For Connector for EMC Documentum 6.5 only)
  - configservice-impl.jar,
  - configservice-api.jar

The new system property should take on this form:

```
[component id].ext=[JAR files and/or folders]
```

For example, using default Content Server and Documentum Foundation Classes installations, add to the file one of the following system properties on a new line, with no line breaks, and end the line with a carriage return:

- Connector for EMC Documentum 6.5 only:

```
com.adobe.livecycle.ConnectorforEMCDocumentum.ext=
C:/Program Files/Documentum/Shared/dfc.jar,
C:/ProgramFiles/Documentum/Shared/aspectjrt.jar,
C:/Program Files/Documentum/Shared/log4j.jar,
C:/Program Files/Documentum/Shared/jaxb-api.jar,
C:/Program Files/Documentum/Shared/configservice-impl.jar,
C:/Program Files/Documentum/Shared/configservice-api.jar
```

Note: *The above text contains formatting characters for line breaks. If you copy and paste this text, you must remove the formatting characters.*

3 Open a web browser and enter this URL:

```
http://[host]:[port]/adminui
```

4 Log in using the default user name and password:

User name: administrator

Password: password

5 Navigate to **Services** > **Connector for EMC Documentum** > **Configuration Settings** and perform these tasks:

- Type all the required Documentum repository information.
- To use Documentum as your repository provider, under Repository Service Provider Information, select **EMC Documentum Repository Provider**, and then click **Save**. For more information, click the Help link in the upper-right corner of the page in the Adobe LiveCycle ES4 Administration Help.

6 (Optional) Navigate to **Services** > **Connector for EMC Documentum** > **Repository Credentials Settings**, click **Add**, specify the Docbase information, and then click **Save**. (For more information, click **Help** in the upper-right corner.)

7 If the application server is not currently running, start the server. Otherwise, stop and then restart the server.

8 Open a web browser and enter this URL.

```
http://[host]:[port]/adminui
```

9 Log in using the default user name and password:

User name: administrator

Password: password

10 Navigate to **Services** > **Applications and Services** > **Service Management** and select these services:

- EMCDocumentumAuthProviderService
- EMCDocumentumContentRepositoryConnector
- EMCDocumentumRepositoryProvider

11 Click **Start**. If any of the services do not start correctly, check the settings you completed earlier.

12 Do one of the following tasks:

- To use the Documentum Authorization service (EMCDocumentumAuthProviderService) to display content from a Documentum repository in the Resources view of Workbench, continue with this procedure. Using the Documentum Authorization service overrides the default LiveCycle authorization and must be configured to log in to Workbench using Documentum credentials.
- To use the LiveCycle repository, log in to Workbench by using the LiveCycle super administrator credentials (by default, *administrator* and *password*).

You have now completed the required steps for this procedure. Use the credentials provided in step 19 for accessing the default repository in this case and use the default LiveCycle authorization service.

13 Restart the application server.

14 Log in to Administration Console and click **Settings** > **User Management** > **Domain Management**.

15 Click **New Enterprise Domain**, and type a domain ID and name. The domain ID is the unique identifier for the domain. The name is a descriptive name for the domain.

Note: *Use only single-byte (ASCII) characters for the ID. (See "Adding enterprise domains" in LiveCycle Administration Help.)*

16 Add a custom authentication provider:

- Click **Add Authentication**.
- In the Authentication Provider list, select **Custom**.
- Select **EMCDocumentumAuthProvider** and then click **OK**.

17 Add an LDAP authentication provider:

- Click **Add Authentication**.
- In the Authentication Provider list, select **LDAP**, and then click **OK**.

18 Add an LDAP directory:

- Click **Add Directory**.
- In the Profile Name box, type a unique name, and then click **Next**.
- Specify values for the **Server**, **Port**, **SSL**, **Binding**, and **Populate page with** options. If you select User for the Binding option, you must also specify values for the **Name** and **Password** fields.
- (Optional) Select **Retrieve Base DN** to retrieve base domain names, as required.
- Click **Next**, configure the user settings, click **Next**, configure group settings, as required, and then click **Next**.

  For details about the settings, click **User Management Help** in the upper-right corner of the page.

19 Click **OK** to exit the Add Directory page and then click OK again.

20 Select the new enterprise domain and click **Sync Now**. Depending on the number of users and groups in your LDAP network and the speed on your connection, the synchronization process may take several minutes.

(Optional) To verify the status of the synchronization, click **Refresh** and view the status in the Current Sync State column.

21 Navigate to **Settings > User Management > Users and Groups**.

22 Search for users that were synchronized from LDAP and perform these tasks:

- Select one or more users and click **Assign Role**.
- Select one or more LiveCycle roles and click **OK**.
- Click **OK** a second time to confirm the role assignment.

  Repeat this step for all users that you assign roles to. For more information, click **User Management Help** in the upper-right corner of the page.

23 Start Workbench and log in by using the credentials for the Documentum repository:

Username: [*username*]@[*repository_name*]

Password: [*password*]

After you log in, the Documentum repository appears in the Resources view within Workbench. If you do not log in using the *username@repository_name*, Workbench attempts to log in to the default repository.

24 (Optional) To install the LiveCycle Samples for Connector for EMC Documentum, create a Documentum repository named Samples, and then install the samples in that repository.

After you configure the Connector for EMC Documentum service, see *LiveCycle Administration Help* for information about configuring Workbench with your Documentum repository.

6.15 Configuring the Connector for IBM Content Manager

Note: *LiveCycle supports IBM Content Manager, version 8.4 only. Make sure your ECM is upgraded accordingly.*

If you installed the Connector for IBM Content Manager as part of your LiveCycle solution, complete the following procedure to configure the service to connect to the IBM Content Manager datastore.

Configure Connector for IBM Content Manager

1 Locate the adobe-component-ext.properties file in the *[JBoss root]*/bin folder. If the file does not exist, create it.

2 Add a new system property that provides the location of the following IBM II4C JAR files:

- cmb81.jar
- cmbcm81.jar
- cmbicm81.jar
- cmblog4j81.jar
- cmbsdk81.jar
- cmbutil81.jar
- cmbutilicm81.jar
- cmbview81.jar
- cmbwas81.jar
- cmbwcm81.jar
- cmgmt

Note: *cmgmt is not a JAR file. On Windows, by default, this folder is at* `C:/Program Files/IBM/db2cmv8/`.

- common.jar
- db2jcc.jar
- db2jcc_license_cisuz.jar
- db2jcc_license_cu.jar
- ecore.jar
- ibmjgssprovider.jar
- ibmjsseprovider2.jar
- ibmpkcs.jar
- icmrm81.jar
- jcache.jar
- log4j-1.2.8.jar
- xerces.jar
- xml.jar
- xsd.jar

The new system property looks similar to the following:

```
[component id].ext=[JAR files and/or folders]
```

For example, using a default DB2 Universal Database Client and II4C installation, in the file, add the following system property on a new line, with no line breaks, and end the line with a carriage return:

```
C:/Program Files/IBM/db2cmv8/cmgmt,
C:/Program Files/IBM/db2cmv8/java/jre/lib/ibmjsseprovider2.jar,
C:/Program Files/IBM/db2cmv8/java/jre/lib/ibmjgssprovider.jar,
C:/Program Files/IBM/db2cmv8/java/jre/lib/ibmpkcs.jar,
C:/Program Files/IBM/db2cmv8/java/jre/lib/xml.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbview81.jar,
C:/Program Files/IBM/db2cmv8/lib/cmb81.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbcm81.jar,
C:/Program Files/IBM/db2cmv8/lib/xsd.jar,
C:/Program Files/IBM/db2cmv8/lib/common.jar,
C:/Program Files/IBM/db2cmv8/lib/ecore.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbicm81.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbwcm81.jar,
C:/Program Files/IBM/db2cmv8/lib/jcache.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbutil81.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbutilicm81.jar,
C:/Program Files/IBM/db2cmv8/lib/icmrm81.jar,
C:/Program Files/IBM/db2cmv8/lib/db2jcc.jar,
C:/Program Files/IBM/db2cmv8/lib/db2jcc_license_cu.jar,
C:/Program Files/IBM/db2cmv8/lib/db2jcc_license_cisuz.jar,
C:/Program Files/IBM/db2cmv8/lib/xerces.jar,
C:/Program Files/IBM/db2cmv8/lib/cmblog4j81.jar,
C:/Program Files/IBM/db2cmv8/lib/log4j-1.2.8.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbsdk81.jar,
C:/Program Files/IBM/db2cmv8/lib/cmbwas81.jar
```

3 If the application server is not currently running, start the server; otherwise, stop and then restart the server.

You can now connect to the IBM Content Manager datastore from the IBMCMConnectorService Property Sheets by using the Use User Credentials as the login mode.

You have now completed the required steps for this procedure.

(Optional) If you want to connect to IBM Content Manager datastore from IBMCMConnectorService Property Sheets by using the Use Credentials From Process Context as the login mode, complete the following procedure.

Connect using Use Credentials from process context login mode

1 Open a web browser and enter this URL:

http://*[host]*:*[port]*/adminui

2 Log in using the super administrator credentials. Default values set during installation are:

User name:*administrator*

Password:*password*

3 Click **Services** > **Connector for IBM Content Manager** > **Configuration Settings**.

4 Type all of the required repository information and click **Save**. For more information about the IBM Content Manager repository information, click the **Help** link in the upper-right corner of the page.

5 Do one of these tasks:

- To use the IBM Content Manager Authorization service (IBMCMProviderService) to use content from an IBM Content Manager datastore, in the Processes view of Workbench, continue with this procedure. Using the IBM Content Manager Authorization service overrides the default LiveCycle authorization and must be configured to log in to Workbench by using IBM Content Manager credentials.
- To use the System Credentials provided in step 4 to use content from an IBM Content Manager datastore, in the Processes view of Workbench, log in to Workbench by using the LiveCycle super administrator credentials (by default, *administrator* and *password*). You have now completed the required steps for this procedure. The System Credentials that are provided in step 4 use the default LiveCycle authorization service for accessing the default repository in this case.

6 Log in to the Administration Console, and click **Settings** > **User Management** > **Domain Management**.

7 Click **New Enterprise Domain** and type a domain ID and name. The domain ID is the unique identifier for the domain. The name is a descriptive name for the domain.

Note: *Use only single-byte (ASCII) characters for the ID. (See Adding enterprise domains in LiveCycle Administration Help.)*

Note: *When using MySQL for your LiveCycle database, use only single-byte (ASCII) characters for the ID. (See "Adding enterprise domains" in LiveCycle Administration Help.)*

8 Add a custom authentication provider:

- Click **Add Authentication**.
- In the **Authentication Provider** list, select **Custom**, and then select **IBMCMAuthProviderService** and click **OK**.

9 Add an LDAP authentication provider:

- Click **Add Authentication**.
- In the **Authentication Provider** list, select **LDAP** and then click **OK**.

10 Add an LDAP directory:

- Click **Add Directory**.
- In the **Profile Name** box, type a unique name, and then click **Next**.
- Specify values for the **Server**, **Port**, **SSL**, **Binding**, and **Populate page with** options. If you select **User** for the **Binding** option, you must also specify values for the **Name** and **Password** fields. (Optional) Select **Retrieve Base DN** to retrieve base domain names, as required. When finished, click **Next**.
- Configure the user settings, click **Next**, configure group settings as required, and then click **Next**.

For details about the above settings, click the **Help** link in the upper-right corner of the page.

11 Click **OK** to exit the Add Directory page and click **OK** again.

12 Select the new enterprise domain and click **Sync Now**. Depending on the number of users and groups in your LDAP network and the speed on your connection, the synchronization process may take several minutes.

13 To verify the status of the synchronization, click **Refresh** and view the status in the **Current Sync State** column.

14 Navigate to **Settings** > **User Management** > **Users and Groups**.

15 Search for users that were synchronized from LDAP and do these tasks:

- Select one or more users and click **Assign Role**.
- Select one or more LiveCycle roles and click **OK**.
- Click **OK** a second time to confirm the role assignment.

Repeat this step for all users that you want to assign roles to. For more information, click the **Help** link in the upper-right corner of the page.

16 Start Workbench and log in using the following credentials for IBM Content Manager datastore:

Username:*[username]@[repository_name]*

Password: *[password]*

The IBM Content Manager datastore can now be used in the Processes view within Workbench when the login mode for IBMCMConnectorService orchestrable components is selected as **Use Credentials from process context.**

6.16 Configuring the Connector for IBM FileNet

LiveCycle supports IBM FileNet, versions 4.0, 4.5, 5.0, and 5.2 only. Make sure your ECM is upgraded accordingly.

Note: *LiveCycle supports FileNet 5.2 Content Engine; FileNet 5.2 Process Engine is not supported. Moreover, the LiveCycle Configuration Manager (LCM) does not support/configure FileNet 5.2, perform manual configuration for FileNet 5.2.*

If you installed Connector for IBM FileNet as part of your LiveCycle, you must configure the service to connect to the FileNet object store.

Configure Connector for IBM FileNet using FileNet 4.x or FileNet 5.x and CEWS transport

```
-Dwasp.location= <configuration files location>
```

For example, using a default FileNet Application Engine installation on a Windows operating system, add this Java option:

```
-Dwasp.location=C:/Progra~1/FileNet/AE/CE_API/wsi
```

1 Add a new system property that provides the location of these FileNet Application Engine JAR files:

For Filenet 4.x add following JAR files.

- javaapi.jar
- soap.jar
- wasp.jar
- builtin_serialization.jar (FileNet 4.0 only)
- wsdl_api.jar
- jaxm.jar
- jaxrpc.jar
- saaj.jar
- jetty.jar
- runner.jar
- p8cjares.jar
- Jace.jar
- (optional) pe.jar

For FileNet 5.x add following JAR files

- Jace.jar
- javaapi.jar
- log4j.jar
- pe.jar
- stax-api.jar
- xlxpScanner.jar
- xlxpScannerUtils.jar

Note: *Add the pe.jar file only if your deployment uses the IBMFileNetProcessEngineConnector service. The new system property should reflect this structure:*

```
[component id].ext=[JAR files and/or folders]
```

For example, using a default FileNet Application Engine installation on a Windows operating system, add the following system property on a new line with no line breaks and end the line with a carriage return:

Note: *The following text contains formatting characters for line breaks. If you copy this text to a location outside this document, remove the formatting characters when you paste it to the new location.*

```
com.adobe.livecycle.ConnectorforIBMFileNet.ext=
C:/Program Files/FileNet/AE/CE_API/lib2/javaapi.jar,
C:/Program Files/FileNet/AE/CE_API/lib2/log4j-1.2.13.jar
```

2 (FileNet Process Engine Connector only) Configure the connection properties for the process engine as follows:

- Using a text editor, create a file with the following content as a single line and end the line with a carriage return:

  (FileNet 4.x and 5.0 only)

  ```
  RemoteServerUrl = cemp:http://[contentserver_IP]:[contentengine_port]/wsi/FNCEWS40DIME/
  ```

  (FileNet 5.2 only)

  ```
  RemoteServerUrl = cemp:http://[contentserver_IP]:[contentengine_port]/wsi/FNCEWS40MTOM/
  ```

- Save the file as WcmApiConfig.properties in a separate folder, and add the location of the folder that contains the WcmApiConfig.properties file to the adobe-component-ext.properties file.

  For example, if you save the file as c:/pe_config/WcmApiConfig.properties, add the path c:/pe_config to the adobe-component-ext.properties file.

  Note: *The filename is case-sensitive.*

3 If the application server is not currently running, start the server. Otherwise, stop and then restart the server.

4 Open a web browser and enter this URL:

```
http://[host]:[port]/adminui
```

5 Log in using the default user name and password:

User name: administrator

Password: password

6 Click **Services** > **LiveCycle 11 Connector for IBM FileNet**.

7 Provide the Content Engine URL. For example,
`cemp:http://ContentEngineHostNameorIP:port/wsi/FNCEWS40MTOM?jaasConfigurationName=FileNetP8WSI`

8 Provide all of the required FileNet repository information and, under Repository Service Provider Information, select **IBM FileNet Repository Provider**.

If your deployment uses the optional process engine service, under Process Engine Settings, select **Use Process Engine Connector Service** and specify the process engine settings. For more information, click the **Help** link in the upper-right corner of the page.

Note: *The credentials that you provide in this step are validated later when you start the IBM FileNet repository services. If the credentials are not valid, an error is thrown and the services will not start.*

9 Click **Save** and navigate to **Services** > **Applications and Services** > **Service Management**.

10 Select the check box next to each of these services and then click **Start**:

- IBMFileNetAuthProviderService
- IBMFileNetContentRepositoryConnector
- IBMFileNetRepositoryProvider
- IBMFileNetProcessEngineConnector (if configured)

If any of the services do not start correctly, verify the Process Engine settings.

11 Do one of the following tasks:

- To use the FileNet Authorization service (IBMFileNetAuthProviderService) to display content from a FileNet object store in the Resources view of Workbench, continue with this procedure. Using the FileNet Authorization service overrides the default LiveCycle authorization and must be configured to log in to Workbench by using FileNet credentials.
- To use the LiveCycle repository, log in to Workbench by using the LiveCycle super administrator credentials (by default, *administrator* and *password*). The credentials provided in step 16 use the default LiveCycle authorization service for accessing the default repository in this case.

12 Restart your application server.

13 Log in to Administration Console and click **Settings** > **User Management** > **Domain Management**.

14 Click **New Enterprise Domain** and then type a domain ID and name. The domain ID is the unique identifier for the domain. The name is a descriptive name for the domain.

15 Add a custom authentication provider:

- Click **Add Authentication**.
- In the **Authentication Provider** list, select **Custom**.
- Select **IBMFileNetAuthProviderService** and then click **OK**.

16 Add an LDAP authentication provider:

- Click **Add Authentication**.
- In the **Authentication Provider** list, select **LDAP** and then click **OK**.

17 Add an LDAP directory:

- Click **Add Directory** and, in the **Profile Name** box, type a unique name, and then click **Next**.
- Specify values for the **Server**, **Port**, **SSL**, **Binding**, and **Populate page with** options. If you select **User** for the **Binding** option, you must also specify values for the **Name** and **Password** fields.
- (Optional) Select **Retrieve Base DN** to retrieve base domain names, as required. When finished, click **Next**.
- Configure the user settings, click **Next**, configure group settings as required, and then click **Next**.

For details about the settings, click **Help** link in the upper-right corner of the page.

18 Click **OK** to exit the Add Directory page, and then click **OK** again.

19 Select the new enterprise domain and click **Sync Now**. Depending on the number of users and groups in your LDAP network and the speed on your connection, the synchronization process may take several minutes.

(Optional) To verify the status of the synchronization, click **Refresh** and view the status in the **Current Sync State** column.

20 Navigate to **Settings** > **User Management** > **Users and Groups**.

21 Search for users that were synchronized from LDAP and perform these tasks:

- Select one or more users and click **Assign Role**.
- Select one or more LiveCycle roles and click **OK**.
- Click **OK** a second time to confirm the role assignment.

Repeat this step for all users you want to assign roles to. For more information, click the **Help** link in the upper-right corner of the page.

22 Start Workbench and log in using the following credentials for the IBM FileNet repository:

User name:*[username]@[repository_name]*

Password: *[password]*

The FileNet object store should now be visible in the Resources view within Workbench. If you do not log in using the *username@repository name*, Workbench attempts to log in to the default repository specified in step 16.

23 (Optional) If you intend to install the LiveCycle Samples for Connector for IBM FileNet, create a FileNet object store named *Samples* and install the samples in that object store.

After you configure Connector for IBM FileNet, it is recommended that you see LiveCycle Administration Help for information about configuring Workbench functions properly with your FileNet repository.

6.17 Performing a system image backup

After LiveCycle is installed and deployed into production areas and before the system is live, it is recommended that you perform a system image backup on servers to which LiveCycle is configured and deployed. The LiveCycle database, GDS directory, and application servers must be part of this backup. This is a complete system backup that you can use to restore the contents of your computer if your hard drive or entire computer stops working. See the "LiveCycle Backup and Recovery" topic in LiveCycle Administration Help.

6.18 Uninstalling LiveCycle

The LiveCycle uninstaller allows you to selectively remove JBoss, MySQL or LiveCycle components if you have a turnkey installation. Before removing MySQL, back up any data you want to keep.

1 Select **Start** > **Control Panel** > **Add or Remove Programs**, click **Adobe LiveCycle ES4** and click **Uninstall/Change**.

2 On the Uninstall Adobe LiveCycle ES4 screen, click **Next**.

3 On the Remove Turnkey Products screen, select **JBoss** and **MySQL** to remove these components along with the LiveCycle components. Click **Next**.

4 On the Stop Enterprise Suite services, click **Uninstall**.

5 Follow the on-screen instructions and then click **Finish**.

6 Restart your computer if prompted to do so.

Note: *If you choose to retain JBoss/MySQL while uninstalling LiveCycle, you can remove these applications later using the* ***Add or Remove Programs*** *utility in Microsoft Windows. Attempts to remove JBoss/MySQL may fail if a JDK is not installed on the server.*

Chapter 7: Advanced Configuration Activities

7.1 Enabling Federal Information Processing Standard (FIPS)

LiveCycle provides a FIPS mode to restrict data protection to Federal Information Processing Standard (FIPS) 140-2 approved algorithms using the RSA BSAFE Crypto-C 2.1 encryption module.

If you did not enable this option by using Configuration Manager during LiveCycle configuration or if you enable it but want to turn it off, you can change this setting through Administration Console.

Modifying FIPS mode requires you to restart the server.

FIPS mode does not support Acrobat versions earlier than 7.0. If FIPS mode is enabled and the Encrypt With Password and Remove Password processes include the Acrobat 5 setting, the process fails.

In general, when FIPS is enabled, the Assembler service does not apply password encryption to any document. If this is attempted, a `FIPSModeException` is thrown, indicating that "Password encryption is not permitted in FIPS mode." Additionally, the `PDFsFromBookmarks` element is not supported in FIPS mode when the base document is password-encrypted.

1 Log in to Administration Console.

2 Click **Settings** > **Core System Settings** > **Configurations**.

3 Select **Enable FIPS** to enable FIPS mode or deselect it to disable FIPS mode.

4 Click **OK** and restart the application server.

Note: *LiveCycle software does not validate code to ensure FIPS compatibility. It provides a FIPS operation mode so that FIPS-approved algorithms are used for cryptographic services from the FIPS-approved libraries (RSA).*

7.2 Enabling AES-256 encryption

To use AES 256 encryption for PDF files, obtain and install the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy files. These files replace the local_policy.jar and US_export_policy.jar files in the *[Adobe_JAVA_HOME]*/jre/lib/security folder. For example, if you are using Sun JDK 1.6, copy the downloaded files to the *[LiveCycle root]*/Java/jdk1.6.0_31/jre/lib/security folder.

You can download these files from *Java SE Downloads*.

Chapter 8: Troubleshooting

This section provides details about troubleshooting LiveCycle.

8.1 Viewing the log files

Events, such as run-time or startup errors, are recorded to the application server log files. If you have problems deploying to the application server, you can use the log files to help you find the problem. Use any text editor to open the log files.

8.1.1 JBoss Application Server logs

The JBoss Application Server log files are in the *[LiveCycle root]*/jboss/server/lc_turnkey/log directory. These log files are provided:

- boot.log
- server.log.[yyyy-mm-dd]
- server.log

8.1.2 LiveCycle installation logs

The LiveCycle installer log files are located in the *[LiveCycle root]* and *[LiveCycle root]*\log directory.

8.1.3 Configuration Manager logs

The Configuration Manager log files are in the *[LiveCycle root]*\configurationManager\log directory.

8.2 Error while configuring connectors for LiveCycle

Symptoms

When you try to validate configurations on the Verify Configuration screen, you may receive the following error message

```
"com.adobe.livecycle.cdv.CDVException The following ports required by
JBOSS_FOR_ADOBE_LIVECYCLE_ES4 are still in use 8083, 1099, 1098. Another instance may be
running or another application may be using some of the required ports"
```

Resolution

1. Open Windows Task Manager and then select the Java Process of JBoss server.

   The Java Prcess of JBoss should be an instance of *[LiveCycle root]*\java\32bit\jdk1.6.0_31\bin\java.exe or *[LiveCycle root]*\java\jdk1.6.0_31\bin\java.exe

2. Click End Task to kill Java Process of JBoss server.
3. On the Verify Configuration screen, click validate configurations. The JBoss server will start without any errors.

Chapter 9: Appendix - Turnkey Environment Overview

This table provides an overview of the environment for each of the lc_ turnkey installations.

Turnkey installation for JBoss	**Partial Turnkey for JBoss**
J2EE application server: • JBoss 5.1	J2EE application server: • JBoss 5.1
Servers: • lc_turnkey	Servers: • lc_turnkey
Database: • MySQL 5.1.30	Database: • MySQL 5.1.30 • Microsoft SQL Server 2005 SP2, 2008, 2008 R2 • Oracle 11g
Windows services: • MySQL for Adobe LiveCycle ES4 • JBoss for Adobe LiveCycle ES4	Windows services: • JBoss for Adobe LiveCycle ES4
Primary Ports: • 8080 (Web port)	Primary Ports: • 8080 (Web port)
Processes: • mysqld.exe*32 [MySQL] • java.exe (JBoss all server)	Processes: • java.exe (JBoss all server)